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IN THE
COAL INDUSTRY

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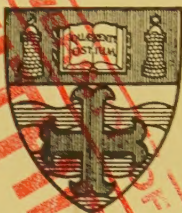
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WAGES IN THE COAL INDUSTRY

WAGES IN THE COAL INDUSTRY

BY

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WAGES IN THE
COAL INDUSTRY

J. W. L. BOWEN
and
J. W. L. BOWEN

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PREFACE

It seems strange that despite the voluminous literature relating to the coalmining industry of this country, there has not yet appeared any detailed study of wages. This is all the more regrettable since the whole problem of wages in this industry has now been a burning issue for several years, and even the general public has perforce had to pay attention to this highly complicated subject. For if this book serves no other purpose, it will, I trust, make abundantly evident the fact that the wage system in this industry does not operate so simply as is generally supposed. The whole matter is in fact difficult and complex, but it well repays a little trouble and attention. The task of collecting wage statistics for earlier years, and all the necessary facts in regard to local conditions and practices without which those statistics cannot be rightly interpreted, has been no simple matter. I cannot hope to have avoided some errors, or omissions of pertinent facts. While generalization is occasionally essential, it is almost impossible to make any generalization as to this industry, to which there are not a considerable number of exceptions. In fact I have done little more than open up the subject, but much will have been accomplished if this book leads to further investigations, and the classification of more statistical information at present buried in innumerable

dusty cupboards. Such studies of the past are not merely of interest to the antiquarian: they are vitally necessary for a clear understanding of the problems involved, and for a diagnosis upon which sound improvements can alone be built. This book contains no patent remedy for a situation which all will admit to be seriously in need of improvement, but if it helps in any way towards a correct understanding of what has been, and what is, and towards clear thinking and right judgment as to what should be in the future, it will satisfy completely the aims of its author.

I have had the greatest advantage throughout of assistance and criticism from Professor Bowley and Mr. R. H. Tawney of the London School of Economics, especially from the latter, to whom I owe more than I can possibly express. I am also indebted to them for many valuable introductions to different persons connected with the industry, employers, trade union secretaries and others, to whom my thanks are specially due, for in many cases they devoted considerable time and labour to supplying me with information. Without their help I should have accomplished little, but I feel it would be invidious to mention names, for though the amount of information which particular individuals could place at my disposal necessarily varied greatly, in all cases I was met with the greatest courtesy and attention. Finally I wish to thank Mrs. Cooper-Marsdin, Mr. A. R. Gidney, Mr. T. H. Searls, and my brother, Mr. M. E. Rowe, who have greatly assisted me in the actual production of the book.

J. W. F. R.

December, 1922

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WAGES IN THE COAL INDUSTRY

CHAPTER I INTRODUCTORY

THE coalmining industry of the United Kingdom has always attracted a considerable amount of public attention. It is in many ways the most important of our industries, both in respect of value produced, directly and indirectly, and of the amount of labour engaged in it. Thus in 1913 the value of all the coal produced at the average pit-head price, that is, simply the cost of production plus profit, excluding all charges for transport, distribution, etc., amounted to not less than about £144,000,000, and even in a time of bad trade such as the year 1905 the production was worth over £80,000,000. The amount of capital invested in 1907 was estimated from the Census of Production to be £128,000,000, while Dr. Stamp in his evidence before the last Royal Commission put it at £135,000,000 in 1913. Finally, in that year more than 1,128,000 persons were employed directly at collieries, above and below ground: this represents not less than one-tenth of the occupied male population according to the Census taken two years before. But in addition to the facts which are capable of statistical measurement, the coal industry is very important in other ways: it is a real key industry, and almost all other industries are in some degree interested and involved in its fortunes. Further, the price we pay

for the goods we import from foreign countries is vitally affected by the condition of our export trade in coal, because the ships which bring imports to this country can thus obtain a valuable return cargo. Again, the peculiar risks of employment underground have led to an enormous amount of legislation: hardly a year passes in which Parliament does not devote an appreciable amount of time to its consideration.

But while its industrial importance to the nation is certainly very great indeed, this is not the real reason why the industry has commanded, especially in recent years, such a great amount of interest among the public at large. It is rather that there has been a peculiarly constant and bitter struggle between employers and employed, with frequent recourse to open warfare. For the last thirty years trade unionism among the miners has been relatively more powerful than in other industries. As the result of their occupation¹ both self-confident and independent, they have gradually become more and more dissatisfied with the remuneration and conditions of their calling, and more and more conscious of the importance of their work to the community and of the contrast between their lot in life and what they conceive it should be. The memory of the iniquitous conditions of the past has added fuel to the flames, and ten years after the defeat of their first action on a national scale, they had so built up their organization that about the year 1904, conscious of their power they embarked in a determined spirit on a unified and definite policy, designed to improve their conditions first in one respect and then in another. Beginning with the question of hours, they speedily followed up their success on that point by turning their attention to wages, and the rise in the cost of living during the late war served to concentrate their efforts still further. If the industry could not afford to pay them higher wages, then it must be reorganized so as to make this possible. Their leaders had gradually come to know more about the very large

¹ It might almost be said by nature, for mining is very largely a hereditary occupation.

profits made by some collieries, and they saw no reason why labour should not take a share, even if other collieries made no profits at all. From practical experience the men knew that the management was responsible for many things which prevented the individual from earning higher wages, and stoutly maintained that all such difficulties could be overcome somehow or another. Nationalization was not, except possibly to a few advanced thinkers, a demand based on abstract conceptions; it was simply a way in which they thought wages could be increased by eliminating surplus profits and improving management, or, at the least, a method by which the sincerity of the capitalist's protestations could be tested. Increased wages or greater leisure, or both, have been and still will be for some time to come the dominant problems in the minds of the majority of wage-earners, and while the two have gone side by side in the coal industry as in most others, the wages problem has come during the last fifteen years more and more to the fore, and seems likely to remain so in the future, at least as long as no attempt is made to revert to longer hours.

While there are a number of books on the British Coal Industry, so far no attempt has been made to study the past history of wages in the different coalfields in any detail, and there is no systematic account of the methods by which wages have been regulated, or of the results obtained. In consequence there is little real understanding of many of the problems which have to be solved, if the present wage system is to be replaced by one more equitable and generally satisfactory. This book is an attempt to fill some of these gaps; it does not pretend to be an exhaustive treatise on the industry in all its aspects. While it is difficult to study an industry in mutually exclusive sections, it is reasonable to do so from one particular point of view. The problem of wage regulation is intimately bound up with those other parts of the picture which complete the whole. These must not be overlooked, and their effect must be estimated as accurately as possible. But it is not necessary to analyse them here in full detail:

for that purpose, sectional treatment is necessary in just the same way as for the wages problem.

While therefore information of a general kind is included, much of it commonplace, but some at least, it is hoped, of a more or less novel character, it is only included because it has some bearing on the wages problem, either directly, or as forming the background against which that problem in all its complexities must necessarily be studied.

As regards the date at which such a study should begin, we have a very limited choice, for there is little or no reliable information as to the actual wages earned in the various coalfields before 1913, except the results of the official Census of Wages conducted in 1886. Fortunately this date serves very well as a starting point, for two years later new standards of wages were adopted in a large number of coalfields, and we can estimate the changes in wages during the interval with a fair degree of certainty. The period since 1888 is sufficiently long to give true indications of the normal course of events, and we need hardly look farther back for concrete explanations of the present position, though the psychological effect of previous events may still be operative. Trade unionism also began to develop seriously in the 'eighties; except in one or two coalfields its power was little felt before then. In 1888 also, the Miners' Federation of Great Britain was formed: the first organization in this industry on a truly national scale. We may therefore congratulate ourselves on a happy coincidence, and confine our study of wages to the period since 1886-88.

One of the first difficulties to be encountered from the point of view of wages, is to estimate how far the mining of coal in Great Britain can properly be regarded as a single industry. Wages have always varied enormously between different pits: there are not in many districts, even to-day, any genuine standard rates for particular grades; and the general level of wages varies as greatly between different districts. *Prima facie* this may be thought the result of differences in natural conditions. The cost of production varies as much from pit to pit as

from district to district. But since coal is found in seams, many of which run throughout the particular coalfield and are worked by a large number of pits, each coalfield has common qualities, both geologically and commercially, for the kinds of coal produced will be approximately the same. This is only true as a wide generalization, for different pits in a district may be working different seams, and the quality of the coal and its thickness may vary enormously in different parts of the same seam. But there are considerable grounds for taking each coalfield as a distinct unit, and the mining of coal in each field, as an industry in itself. For, as will be seen more clearly later, there are no such common qualities between different coalfields.¹ Durham produces mainly steam coal for export to other countries; the Midlands supply a totally different quality of coal, which is consumed at home either for domestic use or for manufacturing purposes. South Staffordshire, and to a lesser extent Northumberland and Lanarkshire, are rapidly becoming exhausted; South Yorkshire has only recently been seriously developed, while the eastern half of North Wales is practically a virgin coalfield even to-day. The methods and the systems of payment vary between different districts far more even than the very considerable differences within each district. Yet one of the most important problems to be studied is the effects of the miners' efforts to weld these apparently different industries into one, at any rate as regards the remuneration and conditions of labour. Their policy, and the effects which it has caused at different times, must be considered in very close relation to the working of what are commonly called "economic laws." But while the Miners' Federation had pursued this policy for many years before the war, and with considerable success, at least as regards the hours of labour, it is only since about 1910 that wages have been made the main object of similar consistent and co-ordinated endeavour. Even in 1914,

¹ The word "coalfield" is used here primarily in reference to geological unity, but also to County boundaries, in the sense that the Yorkshire coalfield is distinct from the Nottinghamshire field, even though both are the same geological formation.

each coalfield was in the matter of wages a more or less distinct unit : since that date there have been great changes in many directions. It might therefore seem best to study each coalfield separately until the outbreak of the war, but thereafter, to consider the mining of coal in Great Britain primarily as one unified national industry.

The disadvantages of studying each coalfield separately are, however, numerous. The same subjects would arise for discussion in most fields, and in spite of many variations in detail a good deal of repetition would necessarily be involved. But a more important disadvantage is that it would be impossible to obtain a general view of any particular subject, or of its similarities and variations between different coalfields. On the other hand, under a classification by subjects, the reader would not have a complete picture of any coalfield. It has, however, been thought best to make a classification under subjects, and in this way much of the ground common to all coalfields is covered, while the Appendices contain such other information as is of special interest, usually classified under the different coalfields. The information given in the Appendices is not merely subsidiary : but though some of it is most important and interesting, its importance is confined to particular coalfields, and is not of such a general nature that it can be conveniently handled under a subject classification without the risk of submerging the principal points in a mass of detail.

In view of the fact that few people outside the industry have ever been down a pit, it has been thought advisable to conclude this introductory chapter by a brief description of the principal operations involved in mining coal, with some reference to the changes which have taken place since the 'eighties in the nature of the work performed by the different grades. It is not our intention to study the wages of juveniles, but to confine our attention to adults working underground. The following description therefore does not cover operations on the surface, nor is it designed to present a picture of the conditions of life and work underground. It is merely a very brief summary of the different classes of work in a pit, together with some notes on such changes

as might have exercised an appreciable influence on the degree of skill required of the different grades. The reader who is thoroughly familiar with colliery working should pass on to Chapter II.

There are two principal methods of mining coal, known as the "Pillar and Stall" (or "Bord and Pillar") and the "Longwall" method. Briefly, the former consists in driving a series of parallel roads through the coal, and connecting them at intervals by roads driven at right angles. The coal is thus isolated in a series of pillars, and when the end of the seam or the boundary of the colliery area is reached, these pillars are cut away and the roof allowed to subside as the men work back. Longwall working is radically different in that the whole of the face is worked simultaneously, either outwards from the pit bottom which is known as "longwall advancing," or, after roads have been driven to the boundary, by working back to the pit bottom, which is known as "longwall retreating." This latter kind of longwall working is generally considered the most efficient, but the initial driving of roads right out to the boundary is an expensive outlay of capital, and is not often done. Once at the boundary the principal advantage of working backwards consists in the fact that there is no need to keep open roads through areas from which the coal has been taken out: the whole of the roof may be allowed to subside. In longwall advancing the area from which the coal has been taken must be carefully packed, and strong walls built so that roads may be kept open to the face. In pillar and stall working the length of roads which must be maintained until the process of "robbing" or removing the pillars of coal begins, is very considerable and involves much expense, but once the robbing begins, the advantage is similar to that gained by the longwall retreating method. It is now almost universally recognized that where it can be employed, longwall working is to be preferred under normal circumstances, but under some conditions the pillar and stall method is still the best. The word "stall" under this latter method, which was at one time the universal and only system of mining coal,

means a working place generally for one or two hewers, but in longwall, while as has been said, the working face is continuous, it is divided into sections or "stalls," measuring so many yards either side of the roadways leading up to the face. The length of these stalls in longwall working varies greatly in different districts, but they generally form a more or less self-contained unit: for example, all the hewers in a stall share equally the proceeds of the coal sent out from that stall. For a fuller description of these two methods of working and a discussion as to their merits, reference may be made to *The British Coal Trade*, chapter viii, by Mr. H. S. Jevons, or for a rather more technical account to Bulman and Redmayne's *Colliery Working and Management*.

During the last fifty years longwall working has tended to displace the pillar and stall method, but there is no reason to suppose that the coal-getters need less skill for one than the other. The series of operations needed for actually getting the coal and loading it into tubs, may all be performed by one man or subdivided among a number of specialists. The series begins with the operation known in different coalfields as "holing," "kirving," or "undercutting." The coal-getter cuts a deep groove at the bottom of the seam, so that the coal has nothing to rest on except the "sprags" or chocks of timber which he puts in to support it until he has undercut it as far as he can. In the 'eighties the holing was done with an ordinary iron pick, though of special shape and size, but during the 'nineties a special tool known as the "patent pick" or "mandril" was introduced. Though a hand tool, this has undoubtedly decreased the physical effort of holing, and made it possible for a man to do more in a day than he used to do, but the operation is still to all intents and purposes the same and requires no less skill than formerly. It remains by far the most arduous part of the coal-getters' work, and hence in this age of invention it is not surprising to find that a machine tool has been introduced. While there are many types of coal-cutting machines, for they are still being improved, the conquest of machinery has not been so

rapid as in many other cases, owing to the great difficulties which have to be overcome, such as bad roof or floor, numerous faults and the inclined angle of many seams. To these unavoidable difficulties, however, must be added the apparent aversion of many old-fashioned managers and of many of the workmen themselves to a new method of coal-getting. The first machines were introduced about 1900, but in 1913 only 24,609,958 tons¹ or about 8·5 per cent. of the total output of Great Britain was got in this way. The following table shows the quantity of coal got by machines in each of the Inspection Divisions, and the percentage of the total production in each division for the year 1913.²

Division.	Tonnage obtained by Machines. (000 tons.)	Per cent. of Total Production of each District.
Scotland	9,335	22
Northern	3,545	6
York and North Midland . . .	7,609	10
Lancs., Cheshire and N. Wales .	2,168	8
South Wales	640	1
Midland and Southern	1,313	4

It will be seen that the machines were used far more extensively in Scotland than in any other coalfield at that date; indeed, it was only in Lanarkshire and to a much smaller extent in Yorkshire that the production by machines in 1913 was at all considerable. The machines can of course only be used in longwall working. Their use has continued to increase since 1913. In 1920 they produced 12·83 per cent. of the total output of the United Kingdom: "more than one-third of the whole of the coal cut by machinery in that year was produced in Scotland, where nearly one-half of the mines at work employed mechanical cutters."³

¹ This was an increase of over four million tons on 1912.

² Mines and Quarries Reports for 1913.

³ Ibid., Reports for 1920.

When the coal has been undercut, either by hand or by machine, it either falls with its own weight as the sprags are removed, or it is "broken out" by driving wedges in at the top, or by an explosive. It is then split up into lumps of a manageable size and loaded by hand into a truck or "tub." But here again machinery has been introduced during the period in the form of a moving band running parallel with the face, so that the coal has merely to be loaded on to it, and is then carried along and shot into the tub. These "conveyors" are very often used in conjunction with coal-cutting machines, but by no means always. As regards the effect on the numbers employed, it may be pointed out that the use of coal-cutting machines means an increased amount of coal to be handled, and the saving of labour by the use of conveyors may or may not result in a decrease in the numbers employed: the cost of production per ton, where they can be successfully used, is of course definitely smaller. As regards skill, the use of conveyors may be said merely to lighten what is ordinarily more or less unskilled labour, and no account need be taken of the possible effect on wages. But coal-cutting machines are a difficult problem. The effect on skill varies greatly in accordance with the degree to which the sub-division of labour has been carried in different coalfields, and it is very difficult to form any opinion on what is such an extremely technical matter. For where there is little sub-division of labour, holing forms only one of a series of skilled operations, and in Northumberland and Durham, where specialization has proceeded much farther than elsewhere, the question is complicated by the existence of the "cavelling system," under which the hewers draw lots for the different working-places in the pit every quarter, and so a man may be working with a machine one quarter, and in the ordinary way by hand the next. The problem is referred to again in the separate studies of the coalfields most affected, and all that can be said in a general way is that until 1914 the tonnage got by machines was relatively so small that the matter can virtually be neglected.

When the coal has been loaded into tubs, a certain amount of "dirt" will remain on the floor, and this has to be cleared away into tubs, or into the "goaf" or "gob," that is the area from which the coal has been removed, and over which the roof will in time be allowed to sink. Then when the seams are not very thick, or where the dirt immediately above the coal is inclined to crumble, it is necessary to make more headroom by "ripping" down the roof. This is followed by the setting of props of timber to support it, and as the face recedes, the timber farthest away is withdrawn and the roof subsides on to the gob. Then the series of operations can be begun over again. All this is known as work at the face, and as has been said, it is performed by all sorts of combinations of labour in different coalfields, and even within each.

Distinct from the work at the face, there is the transport of the tubs to the surface. In many cases the tubs have to be pushed by hand or drawn by ponies a considerable distance before the nearest siding is reached, but in longwall working each stall generally has its own siding. Several tubs are then coupled together, and drawn by a horse either right to the shaft bottom, or in all larger pits into the main roads, where they are attached to the mechanical haulage. Methods of haulage have been greatly improved during the period, particularly in the direction of eliminating any pushing by hand, but in the main the tendency has been more towards a general extension of facilities which existed in the 'eighties only in the best equipped pits, than towards the introduction of any completely new methods. The great developments in haulage systems had taken place before then, except in the poor and backward districts, such as Somersetshire and the Forest of Dean.

Lastly, there is that class of work connected with the repair of the roads, or needed to give access to the seams. When new seams are developed, or when the existence of faults makes it necessary, roads have to be driven through the ground to reach the coal. This is sometimes done by a class of specialists, but not always. The repair work in the roads consists in clearing away falls of the roof and

setting new timber, or in ripping the roof, floor or sides, if the road begins to close up. The tram lines also have to be kept in order, as well as the ventilating arrangements, etc., etc. All this work is done by a variety of combinations of labour, and the methods of payment are equally varied. But it is hoped that this broad general sketch will be sufficient to render intelligible the more detailed accounts of the different coalfields, and to show that the difficult problem of the effect of new methods of working on the skill required of the workers, which arises acutely, for example, in the engineering industry, is more or less absent as regards coalmining.

Not the least of the perplexities with which the student of the coal industry is faced, is the complex nomenclature of the different grades. Men doing the same work are called by different names in different coalfields, and in other cases men who are called the same are doing different work. At the end of the mining section in the Report of the Royal Commission on Labour, 1892, there is a useful glossary of mining terms, but this is not by any means complete as regards the nomenclature of different grades. For each coalfield the names of the principal grades are given either in Chapter III or in the Appendices.

(Appendix I gives a list of the principal sources from which information bearing on the wages problem can be obtained.)

CHAPTER II

I. THE GROWTH OF PRODUCTION AND OF THE NUMBERS EMPLOYED

THE following table shows the number of persons employed underground in the coalmines of Great Britain and the total yearly output from 1888 to 1913 :—

TABLE I.—Total numbers of males employed underground in the coalmines of Great Britain and the Total Output from 1888–1913.

	Numbers employed. (1,000's.)	Output. (Millions of Tons.)
1888	439	170
1889	464	177
1890	507	182
1891	536	185
1892	549	182
1893	550	164
1894	570	188
1895	565	190
1896	557	195
1897	558	202
1898	567	202
1899	583	220
1900	624	225
1901	648	219
1902	663	227
1903	677	230
1904	682	232
1905	691	236
1906	710	251
1907	758	268
1908	796	262
1909	818	264
1910	848	264
1911	864	272
1912	879	260
1913	910	287

It will be noted that the production in 1913 was the greatest recorded, and in that year the numbers employed

reached a maximum also. A comparison, between different years, of output per head calculated direct from this table would be most misleading, but judging by the state of trade it is probable that in 1889 the industry as a whole was working more or less at its full capacity, and the same in 1913. Hence it may be roughly estimated that during the period, the capacity for production increased by about 60 per cent., and the numbers which had to be employed underground to obtain that production, by more than 90 per cent. This ratio may be on the high side, but the error in excess is certainly not considerable.

This development was not, however, equal in all districts, as the following table shows:—

TABLE II.

(*Authority.*—Mineral Statistics and Inspectors' Reports for 1889, and Mines and Quarries Report, Part III, for 1913.)

Districts.	Per cent. of Total Pro- duction of all these Districts.		Per cent. Increase Production.	Per cent. Increase ¹ Numbers Employed.
	1889.	1913.	1889-1913.	1889-1913.
Northumberland . . .	5·3	5·7	69	119
Durham	18·3	15·9	37	104
Cumberland	1·5	·9	33	66
Lancs. and Cheshire. .	13·5	9·4	10	45
North Wales	1·7	1·3	21	46
Yorks	13·3	16·7	99	133
Notts	4·0	4·7	88	118
Derby	6·1	6·9	80	89
North Staffs	2·9	5·5	3	57
South Staffs	5·6			
Warwickshire	1·0	1·9	198	270
Leicestershire	·8	1·2	137	125
Somersetshire	·5	·5	43	30
Forest of Dean	·8	·7	26	24
South Wales	17·0	21·8	102	133
Lanarkshire	8·0	6·7	33	53

¹ The numbers employed are those which come under the Coalmines Regulation Acts. There are certain mines which come under the scope

As regards production, of the bigger districts South Wales and Yorkshire show large increases, while in Durham and particularly in Lancashire there has been a comparatively slow rate of expansion. Of the medium-sized districts Notts and Derby both show a more than average increase, while Lanarkshire shows considerably less. Warwickshire and Leicestershire show the largest expansion of all, but these are quite small districts, and the effect is largely neutralized by the stationariness of production in Staffordshire, and also, to a less extent, in most of the other small coalfields.

Comparing columns iii and iv, it is evident that the increased production has been accompanied by very different relative rates of increase in the numbers employed. These differences are due to many causes, some of which will emerge later. The above table gives a rough view of what has actually taken place, and it must not be used for any other purpose, such as the measurement of the physical effort expended by the men, for which it is not in any way suitable.

Finally, it may be noted that while between 1889 and 1913 the numbers employed underground increased by rather more than 90 per cent., the number of surface workers increased no less than about 185 per cent. A large part of this extra increase is accounted for by the introduction or extension of new processes, such as screening and washing. Nothing further will be said here except to point out that for this reason any comparisons of productivity per head are better made on the basis of the numbers employed underground than on the basis of the total of all workers in or about collieries.

of these Acts, though they do not produce coal, but figures for coalmines separately are not available for each district in 1889. The difference would, however, be quite small, and the rates of increase shown would be little affected if these other mines were excluded.

II. A BRIEF SKETCH OF THE GEOLOGICAL AND COMMERCIAL CHARACTERISTICS OF THE PRINCIPAL COALFIELDS

(A) The Northumberland and Durham Coalfield.

Geologically there is only one coalfield covering these two counties. The County Boundary on the surface makes no difference underground, and the same seams of coal are worked in both. But as regards methods of working and wage rates, the County Boundary is a very real division, as will be seen later. Some twenty-five seams are being worked to-day; they are not much interrupted by faults, nor do they vary much in thickness, and on the whole they lie fairly level.¹

In the northern part of the coalfield, that is in the southern half of the county of Northumberland, a certain amount of "soft coal" is found, while in Durham there is virtually nothing but "hard" or steam coal. For the last fifty years, roughly 30 per cent. of the coal sold from the Northumberland pits has been soft coal, while 80 per cent. of all coal sold has been shipped either abroad or to the south of England. The 20 per cent. taken by the local market is almost entirely soft coal; hence the whole of the steam coal, and about one-third of the soft coal has to be sold in distant markets. Similarly since little or no soft coal is produced, the Durham trade is entirely an export trade. The production in Durham was about three times that in Northumberland in 1913, but nearly four times twenty-five years ago. Broadly speaking, therefore, the prosperity of both counties depends

¹ Yet coal-cutting machines are not much used. In 1913 only 6 per cent. of the total production was got with machines. It would be interesting to know to what extent mere conservatism has prevented their general introduction.

on the export trade, which is of course highly fluctuating. The fact that competition in its most inexorable form governs the trade of these two counties, and has done so for very many decades, must be kept constantly in mind when dealing with the question of wages. The men have realized only too well the lessons which in other districts, where the blast of foreign competition is not so piercing, the owners are still striving to teach their employees. The character of the negotiations between employers and employed is altogether different to most other districts, and presumably this has been brought about partly by the feeling that they have, so to speak, a powerful common foe.

But it may also be the result of the fact that this coalfield is "well on in middle age."¹ Reference to Table II in Section I of this chapter shows that in 1889 Durham produced more than any other coalfield in Great Britain, while together with Northumberland the production was eleven million tons a year more than the whole of South Wales, and nearly double that for Yorkshire. Before that the superiority of this northern coalfield was even more marked. While production in both counties increased steadily till 1914, though more rapidly in Northumberland than in Durham, the total had by then been passed by South Wales, and Yorkshire was producing more than Durham. The increased production is not due to the sinking of new pits, but almost entirely to an extension of those existing thirty years ago, though in some cases new shafts have been sunk to continue existing workings; also more shifts have gradually been worked. It must not be thought, however, that the coalfield is becoming exhausted, as, for example, is South Staffordshire, but it may be said to have reached the stability of middle-age many years ago.

(B) The Cumberland Coalfield.

The Cumberland Coalfield is small, but it has some very interesting aspects, especially in comparison with its great

¹ Coal has probably been worked for 1,000 years. "The sinking of pits" is recorded in 1354—see Webb, *Story of the Durham Miners*.

neighbours on the eastern side of the Pennine Chain. The whole history of coal-mining in Cumberland has, however, been dependent on the course of events not in Northumberland and Durham, but in its neighbours on the West Coast, Ayrshire and Lanarkshire on the one side and Lancashire on the other.

Thirty years ago probably nearly one-half of the total production in Cumberland was exported to Ireland in direct competition with Scotland (mainly as regards manufacturing coal) and with Lancashire (as regards house coal). The Cumberland coal is of better quality than the coal which Scotland sends to the Irish market, but while the selling price in pre-war times varied from 1s. to 1s. 6d. per ton more, the cost of production as compared with Scotland was very much higher, owing to the irregular nature of the seams, the greater frequency of faults, the high percentage of dirt brought up with the coal,¹ and in the case of the Whitehaven Collieries, which are the largest group, the great and growing distances underground from the shaft to the face.

Cumberland has never exported enough to control the Irish market, and in consequence the conditions of supply have been affected not directly by the conditions of demand, but by the conditions of supply in Scotland and Lancashire, which export only a small proportion of their production to Ireland. During the last thirty years, however, the proportion of her total production which Cumberland exports, has steadily declined owing to the development of local industries, namely, iron and steel works, and coke and by-product works, the latter being in many cases operated by the colliery companies themselves; and this, despite the fact that the total production very nearly doubled between 1889 and 1913. This increase in production is the result of the replacement of worked-out pits by new ones of a larger size, though some of the older pits have also increased their production, especially the Whitehaven

¹ Much of this is unavoidable, but it has been a constant source of disputes between the employers and the men. It necessitates much washing, which is, of course, costly.

group. These are the largest in the county and work double shifts;¹ the remainder nearly all work only one. There are about seven workable seams in different parts of the coalfield. The biggest is the "Main Band," which varies from 9 to 14 feet thick; two others run about 5 feet 3 inches, or a little more, and the rest vary from 18 inches to 3 feet. A feature of the coalfield is that a very great part of it lies under the sea. How far it extends seawards has never been proved, but to-day coal is actually being worked four to four and a half miles from the coast, and it is known to extend along at least twelve miles of the coast-line.

(C) The Lancashire Coalfield.

The development of the Lancashire Coalfield may be regarded as having taken place simultaneously with the development of that process in history which is generally called the "Industrial Revolution." The expansion of the cotton industry created a demand for machinery, and hence for coal, and this was shortly followed by the conversion of the mills from water power to steam. The Lancashire Coalfield is practically confined to production for Lancashire's needs; very little coal is exported, and most of that only to Ireland, while there is little or none sent to other parts of England.

The seams vary greatly in thickness and in number in different districts. Some pits are able to work several seams from the same shaft, and this helps to balance the rather costly working consequent on the existence of faults, and on the inclined angle at which many of the seams lie. The pits also vary greatly in depth, and as many of the upper seams in the old pits are by now becoming exhausted, the cost of production has inevitably increased. These factors, combined with a lack of expansion in the local

¹ The term "double shift" means two coal-getting shifts, i.e. when coal is actually being hewn and wound. Whether double or single shifts are worked, there is also another shift when repairs and maintenance are carried out, but no winding takes place. In a single-shift pit, therefore, there is one coal-getting shift and one repairing shift: in a double-shift pit, two coal-getting and one repairing.

market, for Lancashire's industries have grown only comparatively slowly in recent years, have resulted in very little, if any, increase in productivity, as is shown by reference to Table II in Section I of this chapter. At the same time, it may be noted that the decrease in hours, and the greater proportion of men needed for "oncost"¹ work as a result of the exhaustion of the upper seams and the growing distance from the face to the shaft bottom, are two factors which have involved a very considerable increase in the number of men employed.

(D) The North Wales Coalfield.

This coalfield, which is situated in Flintshire and Denbighshire, may be said to-day to consist of two distinct parts. The general prevalence of faults and irregularities in the seams which were being worked, led to the belief that the coal measures ended near Wrexham, and it was not until about twenty years ago that this was proved to be only a very large fault, beyond which the seams continued, though at a greater depth. The "Wrexham Fault," as it is called, is thus the boundary between an old and partly worked-out area, and what is even to-day an almost virgin coalfield. As there was in 1914 only one pit working beyond the fault, we shall disregard this new district and confine our remarks to what may be called the old North Wales Coalfield.

The coal produced consists of about 65 per cent. steam and 35 per cent. soft. Most of the latter is consumed locally, while the chief market for the steam coal is Birkenhead; it is used for manufacturing and for railway locomotives, and a good deal also leaves the country as bunker coal, though there is no foreign export trade. The largest seam is called the "Main" Seam, and varies from 7 to 12 feet in thickness, but by 1913 it was becoming exhausted. It also provided some of the best quality coal produced, and in a sense, therefore, the coalfield may be said to have passed its best days, for though there are other good quality

¹ All work not directly connected with the actual operation of coal-getting.

seams, they are only about 18 inches thick, and the cost of production is therefore high. Between these extremes there are six or seven other seams of varying thickness and inferior quality. The "Main" Seam is still worked at any depth from 20 to 800 yards; most of the pits are sunk between 400 and 800 yards. The production has increased steadily during the last thirty years, but this has come about mainly by an extension of existing pits, though one or two new ones, and those large ones, have been sunk during the period. Four or five of the thirty pits working in 1913 were of a considerable size, employing from fifteen hundred to two thousand men each, and the rest graduated down to one hundred and fifty only. There have generally been a few double-shift pits, but the great majority have always worked one winding shift.

(E) The North Staffordshire Coalfield.

Geologically this district is connected with the larger coalfield of Lancashire, but it is in most other respects a unit in itself, and though small, it is, as we shall see later, particularly interesting from the point of view of wages. It consists really of two distinct districts, the eastern and the western. In the latter the seams are very contorted, some lying in an almost vertical plane, and the coal is particularly liable to spontaneous combustion; hence the pillar and stall method of working is alone possible. In the eastern district, the natural conditions are easier, and longwall working is almost universal. There is also the detached Cheadle district, but it is so small that it can be neglected for our purposes. All over the coalfield double-shift working has always been the normal method, but there are a few exceptions. The seams now being worked average about 6 feet, and are found at practically any depth up to 600 yards. All kinds and qualities of coal are produced, mainly suitable for domestic use and manufacturing, though there is a proportion of good gas and coking coal. There is little sign at present of any approaching exhaustion, and it is somewhat surprising to find that the output has not increased more rapidly. In 1889 the

production in North Staffs was 4,712,000 tons, and it had only risen to 6,500,000 tons in 1910.¹ This may, however, be due to the fact that there is no immediate local market, except the Potteries, and that the cost of production owing to faults, irregularities, and the inclined nature of the seams in the western district, makes it impossible to meet the cost of freightage, and so compete with either Lancashire or Cannock Chase in the big manufacturing districts lying to the north and south.

(F) The Yorkshire Coalfield.

The Yorkshire Coalfield is really divided into two distinct districts, South Yorks and West Yorks; the Cleveland district is mainly concerned with iron-ore production, and what coal is got, is incidental to the ironstone mining. The development of coal-mining in Yorkshire began really with the industrial revolution.² This is also true of the Lancashire coalfield, but inasmuch as the metal industries of the West Riding developed later than in Lancashire, while the cotton mills used steam power before the wool and worsted, so the development of Yorkshire's coalmines took place at a rather later date also. The western district was developed first, because the typical industries of Yorkshire started life on that side where the valleys were steep and water power was good, and also because the coal seams lie there at no great depth. But these western seams are thin, and with the increase in mining and in mechanical science, it became possible to work the richer seams to the east despite the fact that they lie at a greater depth. For the coal measures dip steadily from west to east; hence, while even to-day some coal is got virtually on the surface, there are also pits to the east round Doncaster 1,000 yards down, the deepest in Great Britain. These new pits in the south-eastern part of the county are mostly undertakings

¹ This figure was given before the Minimum Wage Board in 1912. The official figures do not give separate returns for the different districts of Staffordshire.

² Coal was however worked to some extent round Leeds and Sheffield more than 200 years ago.

on a very large scale, and consequently, though comparatively few in number, they account for very much more than their proportional share of the total production. The general trend of development is most clearly brought out in a map of the pits in the Yorkshire coalfield, constructed by Mr. Ll. R. Jones, published with an article in the October 1921 issue of *Economica*. How recently this great development has taken place may be judged by reference to Table II in Section I of this chapter. While separate figures for the two districts are not available, the doubling of the county's production since 1889 must be largely due to the increased production in the south. The greater part of the production has always been consumed locally or in the Midlands, but during the last fifteen years some progress has been made in the development of an export trade from the Humber ports.

The western district therefore differs from the southern in almost every respect. The seams are thin, many of only 13 inches are being worked, and in places they are becoming exhausted; the pits are shallow; and the methods of working the coal differ, for there is a much greater subdivision of labour in the southern district, where more modern appliances are installed, and a much greater use made of coal-cutting machines. Finally, and most important of all for our purposes, wages are at a much higher level in the southern district. There has been one general change during the period which vitally affects earnings. In 1888 roughly 95 per cent. of the pits worked one winding shift, while to-day 80 per cent. work two. The main period of change was from 1896-1906, but it has steadily continued. Presumably the change is due to the great capital expenditure on the new large scale undertakings. The owners of these were forced to spread their standing charges over a greater production, and many other pits have necessarily had to follow suit in order to retain their markets. The single-shift pits have always worked six shifts a week, but the double-shift pits work only eleven a fortnight.

(G) The Coalfield of Nottinghamshire and Derbyshire.

Geologically the one great North Midland coalfield covers Yorkshire and these two counties. Many of the seams are found in all three, as, for example, the famous "Barnsley Bed," which has been worked almost continuously from Barnsley right away to Nottingham. But the two southern counties have never enjoyed the large local market which the manufacturing towns provide in Yorkshire, and though they lie nearer to London and the south-eastern counties, Leicestershire has an even greater advantage in this respect. There is, therefore, commercially a considerable distinction between the northern and southern parts of the North Midland coalfield, but except for the fact that there are separate organizations both of employers and of workpeople in each of the two counties, it is impossible to draw any clear distinction between Notts and Derbyshire. It may be noted here, however, that South Derbyshire, that is the small district south of Derby on the higher land across the Trent, is connected both geologically and commercially with Leicestershire, and should be grouped with the South Midland coalfield; it is not therefore dealt with here at all.

In the early 'eighties Derbyshire was producing mainly house and gas coal. Derbyshire "Brights" have always been considered one of the best house coals in Great Britain, and commanded a market only limited by the cost of rail transit. Nottinghamshire, on the other hand, producing both soft and steam coal, was more closely confined to the local market where demand was neither very large, nor increasing at any rapid rate. There were no double-shift pits, and the trade in both counties was very slack in summer. The year 1876, however, had seen the sinking of the first pit in the Leen Valley¹ to work the "Top Hard" seam of good steam coal, and a number of others followed. But for the next twenty years this was the only district working the Top Hard. Then about 1896 the same seam

¹ The Leen Valley runs almost due north from Nottingham up to Hucknall Torkard.

was developed round Mansfield, partly in Derbyshire and partly in Notts. In the Leen Valley it is only about 4 feet thick, but round Mansfield it measures 7 to 8 feet, though it is known by the name of the "Five Foot Top Hard." The new pits nearly all work double shift, and this combined with easier natural and physical conditions for production, together with a larger scale of operations and the introduction of modern equipment, has enabled the market to be extended, and a large increase in production has resulted.

There have, therefore, been great changes during the period. In 1888 the Derbyshire production was mainly soft coal, distributed over a fairly wide area, while Nottinghamshire, owing to the fact that the Leen Valley pits supplied a large part of the county's production at that date, produced much manufacturing coal for a local market, as well as soft coal. By 1913 about 25 per cent. of the Derbyshire and fully 50 per cent. of the Nottinghamshire production¹ was top-hard. Conditions vary widely; old top-hard pits in the Leen Valley where the distances from the shaft bottom to the face run into miles, and where the men need both skill and strength, present a great contrast to the new pits round Mansfield where production is both cheaper and easier, and there are great differences between the old soft coal and the new top-hard pits in Derbyshire. Single-shift working has continued to be customary in the soft coal pits, though a few have changed with the introduction of the double-shift system in the new top-hard; in 1913 about 15 per cent. of the Derbyshire pits, and some of these the largest, were working double-shift, while fully 30 per cent. of the Notts miners were doing so. In the Leen Valley five days only have been worked for a quarter of a century or more, but elsewhere the double-shift pits have maintained the old five and three-quarter shifts a week² as worked in the soft coal pits. Finally, it may be

¹ Mr. F. B. Varley, Financial Secretary of the Notts Miners' Association, states that "recent analysis (March, 1922) shows that, judged by tonnage, top-hard output is $\frac{1}{3}$ ths of the whole. Top-hard seams employ 37 per cent. of the men and they put out 46 per cent. of the output." This relates only to Notts.

² The afternoon shift work only five times a week.

pointed out that the development of the top-hard has made the trade of these counties much less seasonal than it was before.

(H) The South Midland Coalfield.

The principal districts comprising this coalfield are Cannock Chase, South Staffordshire, Warwickshire and Leicestershire. Coal is also got in Shropshire, Worcestershire and South Derbyshire, but the production in these counties is so small that we may neglect them. While these four principal districts are generally grouped together, there are great differences between them, and especially as regards wages. But they are alike in the general quality of the coal produced. The greater part of it is soft coal or the softer qualities of steam coal. The market is therefore mainly for domestic consumption, gas, and manufacturing purposes. The production of South Staffs is consumed locally, while that of Warwickshire goes mainly to the Midland manufacturing towns.¹ Cannock Chase in the 'eighties used to produce mainly house coal, but during the period the proportion of steam coal has grown very markedly. The steam coal is disposed of locally, but much of the soft coal is sent to the southern and south-eastern counties. This is also the case with the Leicestershire trade, which is almost entirely in house coal. At the same time, despite relatively cheap working, development in Leicestershire has been greatly handicapped by the absence of any local market; practically all the coal produced has to be transported by rail; London is one of the principal markets. These districts, therefore, are primarily concerned with the production of house coal, and this was even more truly the case thirty years ago. Hence the trade was very slack in summer, though it has gradually become less seasonal with the increase in the proportion of manufacturing coal.

These are some of the points of general similarity, but,

¹ The Warwickshire coal contains a very large percentage of small coal or slack, much of which used to be thrown away, but is now used in furnaces and commands a good price.

as we have said, the differences are even greater. Reference to Table II in Section I of this chapter will show that while production in Warwickshire and Leicestershire had grown far more rapidly from 1889 to 1913 than in any other district in Great Britain, there had been practically no increase in Staffordshire. Separate figures are not available for 1913 for the different districts within the county, but there is little or no doubt that Cannock Chase has been developed considerably since the 'eighties, and as production in North Staffs has not declined, it has almost certainly diminished in South Staffs. This coalfield is unique in this respect as it is in many others; a separate account of the special characteristics of the coal seams and the special methods of working are given in Appendix III, Note III. Conditions in the Cannock Chase area and in Leicestershire, may be said to be more or less ordinary, but Warwickshire, owing to its comparatively recent development, is notable for the large size of the pits. Both South Staffs and Warwickshire are very full of faults, but whereas in the former the method in the past was to sink a pit and abandon it when any large fault was reached, and then sink another the other side of the fault, in Warwickshire the practice seems to have been to break through the fault and continue the working from the same shaft. Thus, whereas the dominant characteristic of South Staffs is a multitude of small pits, in Warwickshire the tendency is towards a small number of large pits. At the present moment there are some twenty-five pits in the county—of these at least seven have been sunk since 1890, and these seven are by far the largest. There are two or three employing about four hundred men only, five or six employing between eight and nine hundred, and the rest range up to over two thousand. The latest pit to be sunk is about 500 yards deep, and the shaft is no less than $21\frac{1}{2}$ feet in diameter. A consequence of the large scale on which operations are conducted is a multiplication of shifts. All the Warwickshire pits work two winding shifts, and some three, doing their repairs over the week-end. In the other districts single-shift working is almost universal.

Considerations of space forbid a more detailed account of these districts, but sufficient has been said to make it clear that, while for certain purposes they may be treated broadly as a homogeneous whole, in other respects they differ considerably, and in consequence generalizations must be made with great care.

(J) **The Somersetshire Coalfield.**

There are three more or less distinct mining districts in Somersetshire, centred respectively round Bristol, Newbury and Radstock. The first two of these districts are quite small, and relatively unimportant, as there are only about four pits in each. Radstock is the main centre, and the following account relates to that district only. There are three series of coal seams ; the Upper or, as it is often called, the Radstock Series, the Middle Series and the Lower Series. Thirty years ago the Upper Series alone was being worked. It consists of about ten seams, none of any great thickness, and most of the coal is suitable for domestic purposes only. But this Upper Series has since then become gradually exhausted, and the principal output to-day is from the top three or four seams of the Middle Series. These give coal of varying qualities, suitable for domestic, gas, and manufacturing purposes. Accordingly, during the period which we are considering, the district has changed from producing purely house coal to producing gas and manufacturing coal as well ; a change which has caused many indirect effects on the conditions of employment, e.g., the trade is not so subject to seasonal fluctuations as it used to be. The Middle Series is found at a depth of about 600 yards. So far the Lower Series has not been developed round Radstock, but it may be noted that it is this series which is worked in the Newbury district, for Radstock is the centre of a basin on the edge of which lies Newbury, and hence the Lower Series is found at no greater depth there than is the Middle Series at Radstock.

A local weekly newspaper, in its issue of March 9, 1817, gives an interesting account of a great strike among the Radstock coalminers which had taken place during the

previous week. Some three thousand men, "well furnished with immense bludgeons," marched about the district, and when cavalry were sent to restore order they greeted them with "three cheers," calling out "Bread or Blood. Hunt for ever."¹ The same account put the total number of coalminers in the district as six thousand, or about the same number as were employed in 1912-13. It is, therefore, an old coalfield which has had to fight more and more desperately for its very existence, as other districts have developed, and as the local market has been threatened by reason of cheaper transport, although local demand has grown owing to a considerable increase in population and to the establishment of some big ironworks. The proximity to Bristol has not been of much use, for very little of the coal produced is suitable for bunkering, and the cost of production is too high for export purposes. As a manufacturing centre Bristol has not developed much during the last half century, and hence markets have to be found all over the neighbouring counties, or, as it has been expressed to me, "Wherever we can get in." In these circumstances, and in view of the fact that it is completely surrounded by purely agricultural districts, where wages have been at a low level, and where there has been no rapidly growing demand for labour, a study of this coalfield, despite the relatively small size of its production, seems well worth while.

(K) The Forest of Dean.

No one who is not familiar with the Forest can realize how completely it is a world to itself, or how isolated is the position of the Forest community. Thirty years ago this was of course even more the case than it is to-day, and these facts must not for a moment be overlooked in any general study of the Forest coal industry. It is sometimes

¹ A reprint has lately appeared in the *Radstock and District Guardian* in its issue of July 22, 1921. Conditions in 1817 were very bad, and the local magistrate appears to have realized that this was the real cause of the disturbance, though in a lecture to the men after they had been surrounded, he told them that he knew that "their minds were inflamed by disaffected persons not only in speeches but by parodies on the Liturgy of the Church, endeavouring to seduce them not only from their King, but from their God."

imagined that the Forest of Dean coalfield is a sort of "poor relation" or appanage to its great neighbour, the South Wales field, but this is a complete misapprehension of the position. Geologically, it is connected with South Wales, as is Somersetshire, but coal has been worked in the Forest probably for centuries, and the industry is altogether independent—indeed, if it has any direct connection, it is with the Midlands, rather than South Wales. For thirty years ago the production of the Forest coalfield was almost entirely house coal, and though the bulk of it was consumed more or less locally,¹ the remainder was shipped to Ireland and the south-west of England, and thus competition has been more with the Midlands than with South Wales. Hence wages in the Forest have tended to follow the variations in the Midlands.

The Forest coalfield covers an area about nine miles by eight, and is a perfect example of a "basin." All the fifteen or sixteen seams outcrop round the edge, and hence mining until comparatively recently was accomplished by working from the outcrop down to the free drainage level. When this had been reached, the working of course became water-logged, and generally had to be abandoned, since there was not sufficient capital available to instal the necessary pumping machinery. Until the beginning of the last century, therefore, there were no vertical shafts or pits in the ordinary meaning of the word. The names of the first large undertakings reveal their age—Trafalgar and Waterloo—and thirty years ago there were about nine or ten of these and perhaps forty "level" workings. To-day there are sixteen pits employing one hundred men or more, and about fifty "levels" employing any number from two to seventy men. But whereas the principal pits thirty years ago produced nothing but house coal, at least one-half of the pits working to-day produce mainly steam coal. For below the house-coal seams, which vary from 12 to 26 inches in thickness, there is one steam-coal seam about $4\frac{1}{2}$ feet thick, though it varies greatly at the edge of the basin. In the 'eighties this was worked only at the outcrop

¹ A good deal went to supply the needs of the Stroud Valley.

on the level system. Now there are seven large undertakings working this seam. The steam-coal pits work two or more winding shifts, but the house-coal pits only one. Thus there are to-day clear divisions between the house and steam-coal pits, and between the larger undertakings and the great number of smaller "level" workings. But it should not be thought that the steam-coal pits are all new during the last thirty years, nor that the house-coal pits are the same; in some cases the old house-coal pits have sunk their shafts deeper so as to reach the steam coal, and there are also new house-coal pits in place of some which have been abandoned. The great difficulty in the Forest coalfield has been a lack of capital. The pits are mainly "family" concerns, and the owners are, as a rule, local men. Not only has this delayed development, but it has meant more costly working. For example, the arrangements for the transit of the coal from the face to the surface are in many cases most antiquated; a double winding shaft is a rarity; but perhaps the greatest loss has been through the lack of ability to provide large pumping machinery. Another series of difficulties has followed from the system of mineral rights, which has survived from feudal times. For an account of the "free-miners" and of the drawbacks of the system, reference should be made to the Royal Commission on Coal Supplies—Part X. The total output is of course small, but it is interesting to compare what has taken place in this isolated district with the course of events in the larger world around it.

(L) The South Wales Coalfield.

The South Wales coalfield (including Monmouthshire) is often thought to produce only steam coal for export, but a very large amount of the tonnage even to-day is used for industrial purposes at home. This was very much more so in the past. The old districts, such as Ebbwvale, Tredegar and Merthyr, were built up to supply the demands of home industry. Most of the collieries were owned by the great ironmasters of South Wales, who considered them as a "side-show" to their main business of making iron and

steel. It was not until the great slump in iron prices, during the 'sixties, that the ironmasters turned their attention to the "sale of coal as a source of profit, a policy which they have ever since continued. They at once found it profitable, because their mines were more fully developed than those which had recently been started in the Aberdare, Mid-Taff and Rhondda Valleys, solely for the sale of coal, and because they paid lower wages."¹ Alexander Dalziel estimated that at the end of the 'sixties the level of wages was 25 per cent. in the Rhondda, and 15 per cent. in the Aberdare Valleys above that in the Merthyr district.² By the end of the 'seventies the transference was more or less complete, and thenceforward the destinies of the greater part of the coalfield were dependent more and more on the export trade. But the development since then has been enormous. Reference to Table II in Section I of this chapter shows that production was more than doubled between 1889 and 1913.³ During the whole period there has been a more or less acute shortage of labour, the difficulties of which have been enhanced by the shortage of housing. The pits have not been sunk near large towns but in country districts, and to a very large extent labour has had to be attracted to the spot from elsewhere. For the same reason the cost of living in the mining villages has tended to be above the normal. Again, the export trade is of course highly fluctuating, and employment is less regular than it was when the main trade was for home consumption. Hence wages have remained at a lower level in the home trade districts.

(M) The Lanarkshire Coalfield.

Coal is mined in almost every county in the South of Scotland, but there are three main districts—Lanarkshire, Fifeshire and Ayrshire. Of these Lanarkshire is by far the largest. This was much more truly the case thirty years

¹ *The British Coal Trade.* H. S. Jevons.

² *The Colliers' Strike in South Wales* (1871).

³ Nor is this to be accounted for by any multiplication of shifts. The South Wales miners have always been against double-shift working, and have made good this policy.

ago, for though the latest of the three to be developed, the Lanarkshire coalfield may be described to-day as already "well on" in life. Fifeshire, despite the fact that history records coal-getting there in the thirteenth century¹ and that a well-established export trade to the Continent existed in the sixteenth, has developed comparatively slowly until quite recent years. Thus in 1889 Fifeshire produced only two and three-quarter million tons as against over thirteen million from Lanarkshire, but in 1913 Fifeshire supplied more than one-half of the Lanarkshire production, which then totalled about seventeen and a half million tons. The Royal Commission on Coal Supplies in 1905 reported that "Fifeshire takes the leading position in Scotland in the matter of its coal resources . . . the output from Fife is certain to advance till it occupies a leading position in the Scotch coal trade." The Lanarkshire coalfield was not developed until the eighteenth century. Its rapid rise to pre-eminence was due to three chief causes—firstly, the seams lay at no great depth and were easily and cheaply worked; secondly, the famous "Blackband" ironstone was found, and coal was needed to smelt it; thirdly, the rise of the Clyde district, both as a shipping and as a manufacturing centre, not only created a huge local demand for coal, to be used directly as well as for smelting, but provided excellent facilities and opportunities for an export trade. In Fifeshire, on the other hand, there were none of these latter advantages, and the seams there were both deep and costly to work. Hence, Lanarkshire held a growing ascendancy during the first three-quarters of the nineteenth century, and still easily holds the lead, though decreasingly so. The development of the Ayrshire field began in the seventeenth century, but the seams are neither numerous nor thick, except in a few isolated places, while the quality is not so good, and mining is costly owing to rock faults. In 1889 Ayrshire produced a little over three million tons, and in 1913 just over four million, a rate of increase equal to that in Lanarkshire.

¹ See the very interesting booklet, *Mining in the Kingdom of Fife*, by A. Cunningham.

Lanarkshire, therefore, is the predominant factor in the Scottish coal trade during the period which we are considering. It produces a great variety of coal, used mainly for manufacturing, railway and domestic purposes.¹ Most of the production is consumed locally, and the export trade is subsidiary though at times very large.² As has been said, the seams lie comparatively shallow, and are on the whole fairly free from faults, though in some places they are very steeply inclined. The general level of wages has always been much the same in all three coalfields, though in the 'eighties it was perhaps very slightly lower in Fife and Ayrshire.³ But each coalfield has its special characteristics and there are many more difficulties to be faced, and a much larger element of uncertainty would result if an attempt were made to give accurate statistics in early years for the whole of South Scotland. Moreover, I have had the opportunity of visiting Lanarkshire only. Wage statistics for 1914 are, however, not available for Lanarkshire separately, but a general inquiry as to the level of wages in Fife and Ayrshire in 1914⁴ leads me to believe that the figures for Lanarkshire only would not be very different. Lanarkshire has not only been the leader in trade, but the Lanarkshire leaders have mainly directed the policy of the Scottish Miners' Federation, and it may fairly be assumed that what has happened in Lanarkshire is also generally typical of the other two coalfields.

III. TRADE UNIONISM, 1888-1921.

The extreme depression of trade at the end of the 'seventies resulted in a general cessation of trade union activity among the miners. Northumberland and Durham were the only district Associations to survive, but the spirit of trade unionism remained, for enough had already

¹ Some hard steam coal is also got in Ayrshire and Fifeshire and in a few places some anthracite.

² Ayrshire and Fifeshire depend more on the export trade; 60 to 70 per cent. of the latter's production was shipped in 1912-13.

³ See Appendix II.

⁴ See also figures of earnings in 1912 submitted by both sides during the Minimum Wage Proceedings.

been done to prove to the miner the worth of organization. This was the period during which wages were automatically regulated by prices according to sliding scales. In these scales there was no limit beyond which wages could not fall, and with prices falling lower and lower, there was a general feeling among the miners that this system of regulating wages was impossible. Just as the campaign for safety and the appointment of check-weighers had built up trade unionism in the 'sixties, so this general opposition to sliding scales gave rise to re-organization. In 1881 the Yorkshire miners united, and terminated their scale: Lancashire followed suit, and in 1885 the Midland Federation, then covering Staffordshire, Warwickshire, Leicestershire and the Forest of Dean, was formed, with the double object of abolishing sliding scales of any sort or kind, and of introducing the eight-hour day.

In 1888 these organizations, together with various small unions as far distant as Fife and South Wales, formed themselves into the Miners' Federation of Great Britain. This was a definite split, for the old National Union of Miners, thereafter mainly composed of and entirely controlled by Northumberland and Durham, was still in existence, upholding the principle of sliding scales, and bitterly opposed to the idea of a universal eight-hour day for all workers underground.¹

While nominally there were plenty of trade unions in 1888, and no district was completely unorganized, it is easy to over-estimate the effective influence of trade unionism at that date. In Northumberland and Durham the unions were conducting negotiations on an organized basis with the employers, and had an effective voice in the general course of industrial relations. In Yorkshire, Lancashire and the Midlands the new organizations were numerically weak, and except on the general question of the system by which wages were to be regulated, they did not count for much. West Scotland was virtually unorganized, and in South Wales there were a number of small, local unions, each pursuing an independent course

¹ For reasons, see Appendix V.

without much effect. In the smaller coalfields there was little or no organization. Generally speaking, except in Northumberland and Durham, nothing was being done to establish standard minimum rates for the district, and the number of agreed price lists¹ was very small. The unions had little effect on the day-to-day conduct of the industry at the pits, and they were only able to exert a very small influence on the general problems of wage regulation. Finally, it may be remarked that for the most part trade unionism was confined to the hewers: there was absolutely no effort made to organize the surface workers, and many unions definitely excluded them by their rules of membership.

In 1888 trade improved, and wages followed the rapid rise in prices. At its foundation the Miners' Federation of Great Britain represented 36,000 workers: in 1893 this figure had grown to over 200,000. In that year there was the first struggle on what may be called a national scale. Prices had fallen sharply and the employers in all coalfields demanded sweeping reductions in wages. Three hundred thousand men in Yorkshire, Lancashire and the Midlands came out on strike in July, and there were also strikes in South Wales and Scotland: altogether nearly four-fifths of the total numbers employed underground at that date were involved. The Federation declared that wages were not to be reduced because prices had fallen, and that the old principles of the sliding scale must be put aside once and for all. Actually wages had risen with prices 40 per cent. since 1888; and whatever means may be devised in the future for steadying wage fluctuations, it is clear that the miner cannot "have it both ways." By December the men were back at work, since the owners' original demand for a 25 per cent. reduction had been modified to one of 10 per cent. But the principle that wages must in the main follow prices had been reasserted, and has not yet been challenged directly a second time. Northumberland

¹ A piecework price list is simply a schedule of the prices paid to the workman for the particular jobs which he has to do: e.g. Xd. per ton for getting coal and loading it into tubs, Yd. for setting each piece of timber, etc., etc. It has nothing to do with the price of coal.

and Durham stood aloof, though the latter, on the termination of its sliding scale, had joined the Federation in 1892. But when the dispute began, Durham refused to join in the great strike,¹ and was therefore expelled.

Their failure taught the miners many lessons, but it only served to convince them more and more of the value of organization. As a direct result of the strike, the Scottish Miners' Federation was formed in 1894, though there was no county union in Lanarkshire, the biggest district of all, till 1896. South Wales also felt the need, and by 1898 "Mabon"² had formed and consolidated the South Wales Miners' Federation, and linked it with the Miners' Federation of Great Britain, which in 1900 reached a maximum membership of rather more than 360,000, or not far short of half the total number of all colliery workers above and below ground. Only Northumberland and Durham still remained outside, though the latter had tried to join again in 1897.

The stumblingblock to complete unity was the question of the eight-hour day. For the Federation steadily and persistently pursued this, the second big object which it had been founded to achieve. At every annual conference a resolution in favour of legislation was carried: every year since 1894, almost without exception, their Members brought a Bill before Parliament. Gradually the belief spread in Northumberland and Durham that after all it was not impossible to rearrange the existing working conditions, under which there were two short shifts of hewers to one long shift of transit workers, and to find the extra boy labour necessary. When the Miners' Eight-Hour Day Committee was appointed, two trade union leaders from Northumberland gave evidence, one in favour and the other against, and each was supported by about half the membership of the Association. Eventually in 1908 the Act was passed, and not the least important of its effects was to make complete unification possible. The old National Union was dissolved, and Northumberland and Durham joined the Miners' Federation.

¹ The Union had been beaten to its knees in a great county strike, lasting over three months, during the previous year.

² The late Right Honourable William Abraham, M.P.

But while the period 1894-1907 was not marked by much outward demonstration of the growing power of trade unionism, great changes had been taking place in the general conduct of industrial relations. Realizing what their predecessors in the 'sixties had neglected, the real energy of the miners' leaders was concentrated in building from the bottom upwards. No district association can do much unless the pit branches, or "lodges," of which it is composed, are vigorous and healthy centres. The "paper strength" of 1888-93 was not only increased very greatly, but became more and more a real live army. Trade unionism began to exercise a day-to-day influence in the life of the individual miner. Price lists were no longer posted by the management, but were fixed by joint negotiation. When there was an injury by accident, the agent dealt with the case, and saved the miner from losing money amidst the intricacies of the law. The unions gradually began to enforce some sort of standard rates for different grades throughout the districts. At some pits they were able to secure "make-up" rates for the hewers in specially difficult stalls. The degree of general control exercised varied greatly in different coalfields, but in all there was at least an influential body of men strongly organized, and waiting for the opportunity to use their power to the best advantage.

Having secured the Eight-Hours Act, the Miners' Federation continued the general process of consolidation, awaiting the next opportunity for further advance. Two years later they were drawn by South Wales into the minimum wage struggle. This is dealt with later, in Chapter V. The power of the Federation was amply demonstrated, and the solid loyalty of the members had been successfully put to the test. The Federation immediately arranged for a general campaign by ordering that no agreements were to be made for any period extending beyond 1915. Until the longest existing agreement had run out, no national action could be taken, and the years 1913 and 1914 were spent in working out the details of the Minimum Wage Act. The outbreak of war postponed the proposed campaign for a radical advance in wages and conditions, and under

the general industrial truce no national move was made until the spring of 1919. But the war period saw a great increase in numbers. In 1907 the membership of the Federation was 458,000 ; the next year, with the adhesion of Northumberland and Durham, the total was 590,000 ; by 1913 it was 670,000, and in 1920 nearly 900,000. Many districts had secured non-unionist agreements,¹ and in reality the Federation after the war included every man employed, and was in a much stronger position than it had been even in 1913.

IV. METHODS OF WAGE REGULATION

As we have seen in the last Section, there was in 1888 a complete cleavage in opinion and practice regarding the regulation of wages by sliding scales. Roughly speaking, miners in Yorkshire, Lancashire and throughout the Midlands were determined that wages should never again be arbitrarily regulated by sliding scales, and openly declared that wages must control prices, and not *vice versa*. These coalfields were at that time producing almost exclusively for home consumption, and were not affected by conditions in the export market. On the other hand, the miners in the North-Eastern coalfield and South Wales could not blind themselves to the fact, that it was impossible to control export prices, whatever might be done as regards the home trade. In 1888, therefore, we have a clear distinction between districts where sliding scales were in force, and districts where wages were regulated by collective bargaining through joint conciliation boards. For in that year conciliation boards were established for the Federated Area (comprising Yorkshire, Notts and Derbyshire, Lancashire, North Wales, Staffordshire, Warwickshire and Leicestershire), for Cumberland,² and for Somersetshire.³

¹ I.e. that no man, who was not a member of the union, should be employed.

² Nominally wages in Cumberland have closely followed the percentage variations in the Federated Area, but actually rates of wages were reduced by about 10 per cent. in 1892. See Appendix IV, Note II.

³ Wages in Somersetshire closely followed the percentage variations in the Federated Area until the great strike in 1893, when 10 per cent.

These Boards are composed of equal numbers representing employers and employed, together with a permanent independent chairman. The two sides usually meet first without the independent chairman, and then if they fail to agree, a second meeting is held at which he is present, and the proceedings virtually become those of a court of arbitration. But there is a very important limitation on the chairman's powers. He can only give a casting vote in favour of one side or the other: he cannot propose a compromise. The importance of this arrangement is far-reaching, but the essential point is that it prevents either side from putting forward any unreasonable or fantastic demands. The constitution of the Boards usually contains a provision that any one advance or reduction may not exceed 5 per cent., and from time to time maximum and minimum limits have been fixed in most cases. Theoretically any argument may be advanced for a change in wages; changes in price are only one of the factors by which alterations of wages should be regulated. But as a matter of fact, economic necessity, and the lingering influence of the sliding scale principles, have resulted in wages following prices very closely. The greater steadiness of wages in the Federated Area is not due to the Conciliation Board system, but merely to the fact that home prices fluctuate less than export prices. Under the Conciliation Boards, alterations are made in the form of percentage advances or reductions on the "standard," just as under the sliding scales, but we postpone a detailed explanation and examination of the system until the next chapter.

In 1889 the sliding scale in Durham was brought to an end, and a Conciliation Board was established. But in Northumberland the scale had been terminated by the workmen at the end of 1887, and from then until 1894 wages were settled on the old system of sporadic interviews

extra seems to have been lost in Somersetshire, and never recovered until in 1900 it was agreed that there should be a permanent margin of $7\frac{1}{2}$ per cent. below the Federated Area percentage, and in addition a "floating" margin of another $7\frac{1}{2}$ per cent., of which $2\frac{1}{2}$ per cent. was to operate automatically, on in winter and off in summer, and the remaining 5 per cent. was to be open to mutual bargaining.

with the employers. In 1894 a Conciliation Board was established, but owing to the continuous fall in prices and wages, the men became dissatisfied and brought it to an end in 1896. For the next four years there was no recognized machinery, but in 1900, at the men's request, a new Conciliation Board was formed. At the end of 1911 the Board came to an end, because the owners refused to entertain the men's demand for a minimum percentage below which wages should not fall. Eventually in 1914 a new sliding scale was adopted with a minimum of 25 per cent. on the 1879 standard, and a maximum of 65 per cent. Owing to the great advance in prices during the war, a supplementary scale was arranged in 1915, and continued until the advent of Government control in September, 1917.

In Scotland, the sliding scale for Lanarkshire was terminated in 1889, and for the next ten years general alterations in wages seem to have been arranged in different small districts, either by percentage systems varying with the price of coal, which were determined solely by the employers, or by formal agreed sliding scales. In 1889, however, the Scottish Coal Trade Conciliation Board was formed, and in 1902 fixed a sliding scale, with a minimum and a maximum, for the whole of Scotland, which lasted with revisions until 1912. This brought a considerable advance in uniformity of wages throughout all districts. After 1912 the Conciliation Board determined general wage changes on similar principles to the English Boards.

In South Wales the sliding scale system survived till 1902, but was then replaced by a Conciliation Board.

In the Forest of Dean, however, the sliding scale system has continued. The history of earlier years is somewhat obscure, but the Owners' Association was formed in 1892, and wages have been regulated by sliding scales at any rate since 1895. One singularity may be noted in this connection, namely, that the price of house coal only is still taken as the basis for the sliding scale—wages in the new steam-coal pits merely follow the prices of house coal, a matter which well illustrates the force of custom in this coalfield. Generally speaking, wages have followed the

movements in the Federated Area less $7\frac{1}{2}$ per cent., though this is not an invariable rule. But it shows how closely wages are in fact regulated by prices, whether under the Conciliation Board system or under sliding scales. There is generally, however, in the Forest a seasonal drop of 5 per cent. in the summer, which is put on again in the autumn.

In 1914, therefore, Northumberland and the Forest were the only districts where wages were regulated by sliding scales. It must be clearly understood that the Conciliation Boards may or may not be exclusively confined to the general regulation of wages. The Boards for the Federated Area and Scotland are so confined, but in Durham and Cumberland any general questions affecting the working of a large number of pits may be brought before the Board, and in South Wales disputes at individual collieries may be dealt with. Hence the South Wales Board meets once a month, though wages could before the war only be altered quarterly, as in other districts. When, as in the Federated Area, the Conciliation Boards deal only with wages, there are one or more Joint Committees appointed to deal with local disputes. Most of the coalfields have at least one separate Joint Committee, and these must not be confused with the Conciliation Boards proper.

In Northumberland and Durham there is one Joint Committee for each county, dating back far beyond 1888, and continuing to function irrespective of whether the general level of wages was determined by Conciliation Boards or by sliding scales. These are the only districts where any detailed system of control over the price lists and time rates at each pit has been evolved. In each county the Joint Committee exercises such control by means of the "County Average" System, which was first established about 1872. Agreement was then reached as to basis wages for a certain number of main grades, and from 1879 right up to the present time the same basis has been used. In other districts the standard simply means the rates of wages current in the different pits at the end of a certain year; it is a quite indefinite conception, at the

most implying a recognized County Minimum for hewers on day work. But in Northumberland and Durham the standard implies definite basis rates for different grades of workmen, and while these rates were only fixed for the purposes of the Joint Committees and are not legal minima, in practice they always have been so. The same principle is applied also in the case of piece-workers. In 1879 basis rates for piecework hewers were fixed for each county, and were known in each case as the Standard County Average. General advances or reductions were made in the usual way on this sum, but the price lists for the various seams at the different pits could not be altered, unless it could be shown that the earnings of all men working in a seam were either 5 per cent. more, or 5 per cent. less than the County Average (including the current percentage). In other words, the price lists had to give average earnings corresponding closely with the County Average, and if they did not, they were altered accordingly. The range of earnings and day rates is therefore likely to be extremely small as between the different pits in each county. At the same time, the County Average System with its 5 per cent. variation is not an automatic arrangement; neither side need make a claim, even when the limit is exceeded, unless they so wish. In practice the men naturally do claim any advance, but very often in times of good trade, if the men are working well, the owners do not wish to damp their efforts by claiming a reduction, considering that to do so would be a "penny wise pound foolish" policy. Hence, in times of good trade the gap between actual average earnings and the County Average widens, but when trade becomes depressed again, it decreases. Mr. W. Straker, Secretary of the Northumberland Miners' Association, does not think that even in times of bad trade actual average earnings per shift have ever fallen lower than twopence above the County Average since 1888, and in times of good trade he puts the excess at sixpence to eightpence, prior to 1914. Again, as regards day rates, the basis rates plus the current percentage are only minima; the actual rates paid may be increased as time goes on. But there is no doubt that the basis wages

fixed in 1879 do represent pretty accurately the earnings at that date, since it was solely with that end in view that they were fixed, and consequently a fair comparison may be made between them and Mr. Finlay Gibson's figures for 1914. This is most fortunate for our purpose since the 1886 Wage Census does not show results for the two counties separately.

Mention must also be made of the Scottish "common" or "field" price. In this matter, as in the subdivision of labour, Scotland stands between the "County Average" system of Northumberland and Durham, and the absence of any such arrangement in other English coalfields. Theoretically, the "common" price is an agreed district minimum, and if the average earnings given by any one cutting price are either much above or below this figure there is supposed to be, *a priori*, a general case for an alteration in that cutting price. Different rates seem to have existed in different districts of each coalfield before the establishment of the Scottish Coal Trade Conciliation Board in 1899, which body agreed in the following year that the average of these rates at standard, as in 1887, should be taken as a general minimum wage for coal-getters. The average agreed upon was four shillings per shift and to this, of course, the current percentage has to be added. It was not an individual minimum wage, but it was to serve as a limit to average earnings either way, and to give a flexibility to price-list alterations by providing a recognised *a priori* basis for argument, the lack of which has often given rise to much friction in English coalfields, excepting of course in Northumberland and Durham. It is difficult to estimate the result in actual practice. Mr. Small, the Secretary of the Lanarkshire Miners' County Union, estimates that when the percentage is low, average piecework earnings are about sixpence to ninepence more than the standard day-rate, but when the percentage is high, the gap may widen to one shilling or one and sixpence. This is similar to the course of events under the County Average System—the management in times of good trade do not wish to discourage output by

cutting piece rates—and in Scotland it may be accentuated, owing to the readiness with which the Scotch miners restrict their output in times of bad trade or falling prices. The system does not seem to have had any effect on the range of rates paid to men on day-wages. The tables in Appendix IV, Note VI, give some idea of the great range of day-rates in all grades, and while figures are not available for earlier years, there is no reason to suppose that the differences would be any smaller, relatively to the lower general level of wages.

This account is, we fear, altogether too brief, and unworthy of the importance of the subject, but the mere machinery for wage regulation can only be studied intelligently after its precise effects have been examined.

CHAPTER III

I. NOMINAL (PERCENTAGE) MOVEMENTS OF WAGES

As we have seen, wages in all coalfields are formally¹ adjusted by a percentage system on or off the rates existing at a certain date. At that date wages are said to be "at standard," and the rates then paid are called "basis" rates. Alterations are therefore made in the form of X per cent. on the 1879 standard, or, which is the same thing, X per cent. on the basis rates. Northumberland, Durham, South Wales and Scotland each have a separate percentage variation, but there is only one for the "Federated Area" covering Yorkshire, Lancashire, Cheshire, North Wales and the Midland Counties; while Cumberland, the Forest of Dean and Somersetshire, follow the Federated Area percentage fairly closely. The standard year varies in these different areas. In Northumberland, Durham, South Wales and Cumberland it was 1879, until in 1915 50 per cent. was merged into the basis rates in South Wales and Cumberland, which percentage was that current in 1911, and so from 1915 we have 1911 as a new standard year. In Scotland, the Federated Area, the Forest of Dean and Somersetshire, the standard was 1888, until in 1915 50 per cent. was merged, and 1911 became the standard year for the Federated Area, as for South Wales and Cumberland. New standards were also fixed for Somersetshire in 1917-18, and for the Forest of Dean in 1919, on somewhat similar

¹ The actual movements of wages are a most complex problem. It will be simplest if we first approach the question from the way in which wages are changed formally, and postpone a consideration of the modifications which take place in practice.

lines. Scotland has still held to the 1888 standard, and Northumberland and Durham to 1879, but for practical purposes in all the other coalfields 1911 may be taken as a new standard, 50 per cent. above the previous one.

Right up to the advent of Government control in 1917 wages were regulated by percentage additions to these various standards.¹ Then the method was changed, and equal advances were given in all districts generally in the form of a flat-rate, as representing the equal cost to all of the rising cost of living, but on one occasion as a percentage on the wages paid prior to September, 1917. When the industry was decontrolled in 1921, wages again became regulated by percentages on the standards. But the period of Government control makes such a break, that for the moment we shall confine ourselves to the movements from 1888 to 1917.

In order to avoid confusion, and to show different aspects more clearly, it is advisable to give more than one graph of the different percentage fluctuations. The following graph therefore shows the movements in Scotland, the Federated Area and South Wales only. Wages in all districts may be adjusted quarterly, but alterations in Scotland and South Wales are far more frequent than in the Federated Area since prices in the export trade fluctuate more violently and more rapidly than in the home trade. Every movement is shown for Scotland and the Federated Area, but only the maximum and minimum variations in South Wales. If all the changes were shown for South Wales, the line would be very irregular, like that for Scotland, but this would very much complicate the graph, and obscure the general movements.

It will be observed how much more violently wages fluctuated in the two export coalfields than in the Federated Area. On the whole Scotland fluctuated more violently than South Wales, particularly in 1907-8, and in 1913.

¹ With the exception of certain war bonuses given first in 1915 in the form of a percentage advance on current wages. But these were later merged into percentages on the standards.

It is clear, however, that the general trend in all three coalfields was the same. We must repeat the warning that the percentage fluctuations must not be taken as any indication of the relative level of wages in the different coalfields; because one line lies above the other it does not necessarily follow that wages are higher in that coalfield than in the other; the lines simply show the percentage alterations on the standard rates.

The next graph shows a comparison of the variations in the principal export coalfields—Scotland, Northumberland, Durham and South Wales. The percentage level of wages at the end of each year only has been plotted, as the object is simply to show the general course of wages in each of these coalfields.

The third graph shows the extent to which wages in the small districts of Cumberland, Somersetshire and the Forest of Dean have followed the fluctuations in the Federated Area. As in the last graph, since the object is a general survey, the levels at the end of each year only have been plotted. This of course conceals the seasonal fluctuations which take place in all three small districts, but details of this have been given in Section II, and for the present object they are only a subsidiary matter.

It would seem therefore that our knowledge as to the fluctuations in rates was remarkably definite and complete, and that if statistics of wages were available for any one year, a simple arithmetical process would give the actual wages earned in any other year. But this is not by any means necessarily true: it is an assumption which requires proof. Yet this assumption is constantly made, largely because hitherto no one has made any general attempt to ascertain whether it is true or false. To do so involves a detailed study of wages in each district. Space forbids us to set out these details, but it is hoped to support the results obtained, by such an account of the general methods employed and the principal sources of information, as will enable the reader to form an estimate of their reliability and exactitude.

II. THE ACTUAL MOVEMENT OF WAGES

In dealing with this rather complicated matter it will be as well to proceed with our investigation by formulating a series of propositions. It is first of all necessary to define more exactly what is meant by "the standard" to which the formal percentage variations are applied.

PROPOSITION I.

The Standard consists of the piecework price lists ¹ and the actual rates paid to timeworkers at each pit in the district at a given date.

PROPOSITION II.

In the course of time price lists change or are modified.

The general consideration that a very large percentage of the men employed, including nearly all the actual hewers of coal, are on piecework, is sufficient to show that alterations in earnings do not necessarily correspond with the recognized formal percentage variations on the standard. For these pieceworkers are paid according to the provisions of a multitude of price lists, and the rate of wages in their case may be taken as the normal average earnings per shift yielded by the price lists. These cannot in the nature of things be fixed once and for all, or be universally applicable. The cutting price per ton must vary with the conditions of different seams according to the difficulties of working. If the conditions alter appreciably after a certain interval, either the employer or the miner will want a revision of the price list. This will take place, irrespective of the recognized district percentage variations, which, as we have seen, are primarily fixed according to the selling price of the product. Hence

PROPOSITION III.

The actual average earnings of pieceworkers also vary in course of time owing to Proposition II and various other causes. Day-rates may also be varied.

The alteration of price lists is simply and solely a

¹ A piecework price list is simply a schedule of the prices paid to the workman for the particular jobs which he has to do: e.g. Xd. per ton for getting coal and loading it into tubs, Yd. for setting each piece of timber, etc., etc. It has nothing to do with selling prices.

matter of bargaining, and the same is true when new price lists have to be fixed. The employer will maintain that the hewers should be able to send out X tons a day without undue effort; the hewers will put it at $\frac{X}{2}$; both parties would nominally agree that their object is to fix such a price per ton as would give roughly the normal earnings current in the district, but actually each is out to get an advantage, and the final result will depend on bargaining power.¹ Again, the conditions of working may alter appreciably without any change in the piece rates, or the average effort expended by the workers may become definitely greater or smaller. Changes in hours may also have great effects. Similarly, the proportion of pieceworkers in any grade, or of any grade to the total numbers employed, may alter during a period of years, minimum wages may be fixed and the methods of working change. It must be clearly realized that we are not now considering the relation between alterations in the piece rates and weekly earnings. By taking the normal earnings per shift, we can eliminate the effect of differences in the time worked due to fluctuations in the state of trade. The normal earnings per shift may be regarded as a rate of wages just the same as with time-workers, and all the factors outlined above as affecting rates, apart altogether from weekly or yearly earnings. The basis wages, that is the normal earnings per shift yielded by the price lists at standard, are not necessarily a constant, except over comparatively short periods. Thus not only are the district percentage additions variables, but the basis rates to which they are applied may be variables also.

Similarly as regards men on day rates, the standard is not in most cases a recognized sum of money, but, as has been said, merely the various rates of wages current at each pit in a certain year. The day rates paid have always been a matter of bargaining, in earlier years purely indi-

¹ This may be contrasted with the cotton industry, where, as is well known, average earnings may fluctuate widely, apart from percentage variations on the lists. But in the cotton industry, the lists themselves provide for changes in process, machinery, or character of product, and no bargaining takes place after the list has once been drawn up.

vidual, though tending to become more and more of a collective nature as trade unionism increased. Even in 1914 the day wages paid in most coalfields were not fixed by joint negotiations for the whole district, but were decided by the district trade union and the manager of each pit. The lack of standard district rates is most surprising in view of the great strength of the miners' unions. Yet, broadly speaking, except in Northumberland and Durham, they had up to 1914 completely failed to establish this fundamental principle of trade unionism.

The fact that, as we have seen, wages are formally changed by a percentage variation referring back to a standard fixed years before shows that

PROPOSITION IV.

The formal percentage changes take no notice of Proposition III.

Hence

PROPOSITION V.

The percentage advance or reduction system is not necessarily an accurate measurement of the wage levels of the different grades, even supposing the average wages per shift in the standard year to be known, except over comparatively short periods.

All the time bargaining goes on, both at new pits and at old, and if the results of the bargaining are continuously more in favour of one party than the other, the basis wages are, actually though not nominally, being altered continually. The percentage variations can only be taken over a long period as a rough indication of the level of wages. If wages were at standard in 1888, and again twenty years later, it by no means follows that either pieceworkers or day wage men were getting exactly the same wages at the two dates, though it may be so. It is, therefore, most necessary to ascertain whether over a long period the basis wages of the different grades in each coalfield have in reality, though not formally, been altered.

PROPOSITION VI.

This can only be done by a comparative study of statistics of average earnings.

Under the percentage advance or reduction system the

relative positions of the various grades nominally remain the same, but if the basis wages of one grade have in reality been raised while the others have remained stationary, this must be taken into account. Not only may the general level of wages alter quite apart from the recognized percentage variations, but the relative position of the different grades may be totally changed. It is these facts of which we must now try to understand the significance.

It is evident that we must try and obtain reliable statistics of wages per shift, at two dates, as near the beginning and the end of the period as possible, and compare the result obtained by applying the nominal percentage increase to the earlier figures, with the actual figures shown for the later date. If the calculated figures are the same as the actual wage statistics, we can assume either that the various factors outlined above have not been in operation at all, or that they have cancelled out. In that event, we have considerable grounds for assuming that wages have been closely regulated by the percentage variations throughout the period. But if the actual figures differ from the calculated, we are still very much in the dark as to the exact movements of wages. All that can be said is that where no definite cause has obviously produced an immediate effect, the difference shown indicates a trend over the whole period, and that this should probably be taken as proceeding gradually and at a regular rate, inasmuch as most of the causes take effect slowly, and become perceptible over long periods only.

As was noted in Chapter I, an incomplete census of wages was taken by the Board of Trade in 1886. The returns cover only 16 per cent. of the total numbers employed underground, but they seem to be fairly representative, and were accepted by Sir R. Giffen as satisfactory. Reference to Appendix II, Note I, will show, however, that the proportion returned varied considerably in different districts.

Unfortunately, the figures given are for wages per week. To convert weekly wages into shift wages it is necessary to know the average number of shifts worked per week by different classes of men, and this must not be confused with

the number of days per week on which the pit is open for work, i.e. the maximum possible number of shifts ; it will of necessity be something less than this maximum on account of sickness and accidents, if nothing else. Both the maximum and the actual number of days on which a man works, vary with the condition of trade, but it is the former only which is under the control of the employer, and it is the former which tends to fluctuate more than the latter. For the number of days on which a man will work, when work is available, is undoubtedly partly dependent on custom, and he will be very loth to change his habits and customs with the ups and downs of trade. There is no information as to the usual number of days worked per week relating to the year 1886, but a very full and detailed report ¹ on hours of labour in mines was submitted to Parliament in 1890 by the Home Office. The return does not appear to relate to any particular date, and may be taken as of a general nature, and as referring to the ordinary normal week. Since the 1886 figures represent wages for a full ordinary week's work, it would appear that if these figures are divided by the appropriate number of days as shown in this report of 1890, the result will give a fairly accurate return of shift wages. This is the method by which the 1886 weekly rates have been converted into shift rates, modified for certain grades (notably the fireman group and the labourers who usually work a full six-day week) by such reliable information in regard to local practices as I have been able to collect. The results of the wage census relate to October, 1886, but since 1888 is the standard year for a large number of districts, and as wages were in nearly all cases at approximately the same level at the two dates, comparison is finally made between 1888 and 1914. Apart from percentage changes, which have been allowed for, there is not much chance of any of the more indefinite factors, which we are studying, taking effect in the short time between 1886 and 1888. In addition to the wage census there are certain statistics of wages which I have been able to collect

¹ 1890, LXVIII, 284.

from various sources, and in making the final estimate for 1888 all the evidence available has been compared on its merits.

For the period immediately before the war, we have more abundant and reliable information as to average earnings in the different districts than we possess for any other industry in any year before the war. Two schedules of earnings per shift were presented to the Royal Commission on the Coal Industry in 1919,¹ one by the Coal Controller relating to November, 1913, and the other by Mr. Finlay Gibson on behalf of the Mining Association of Great Britain, relating to June, 1914. It may be noted that both these schedules were obtained by taking a wage census from the colliery books. The Coal Controller does not give the number of men covered by his returns, but Mr. Finlay Gibson shows in great detail the numbers returned and the methods of averaging, etc. The proportion returned varies considerably in different districts, but altogether his returns cover 732,191 males employed underground, out of a total for Great Britain of about 915,000 in 1914. This is so large a sample, that its accuracy on that score cannot be questioned, despite the very great variations in wages in the coal industry. Yet in many cases there are somewhat wide differences between the two schedules, and these are not by any means confined to pieceworkers. Mr. Finlay Gibson's tables were, of course, submitted on behalf of the owners, and it might be argued that the non-partisan estimates of the Coal Controller should be preferred. But a comparison, so far as it can be made, reveals no clear bias in Mr. Finlay Gibson's figures, and it must be admitted that in dealing with the technical difficulties of the question he and his staff had had a longer experience and greater facilities than the Coal Controller. Moreover, Mr. Finlay Gibson does not attempt any combination simply on the ground of geographical proximity; for example, the Coal Controller takes all the Midland County coalfields together, despite the fact that there are vast differences between them. The cause of the divergences

¹ See Minutes of Evidence, Volume III, Appendices.

between the two estimates probably lies mainly in differences of classification, at least in the absence of any clear evidence to the contrary. On the whole, Mr. Finlay Gibson's estimates are to be preferred, especially in view of their greater detail.

We shall not, therefore, make any direct use of the Coal Controller's figures for comparison with 1888, but occasionally reference will be made to them when they throw light on the classification of the returns obtained by Mr. Finlay Gibson. For it must be noted that the latter had to rely on the owners' interpretation of the classification asked for by him, and the owners in each district would adopt the customary local classification, so that absolute uniformity as regards the composite classes must not be expected. This applies more particularly in the case of the age limit between a youth and a man, which varies in different districts. Mr. Finlay Gibson was closely cross-examined on this point, but he naturally replied that he could say nothing beyond what was stated in the tables, viz.: that "adults are taken as being over twenty-one years of age, except in special cases where the rate for adults is applicable to a lower age." While in a few cases I have found reason to doubt the accuracy of his returns, on the whole they are undoubtedly as trustworthy and reliable wage statistics for this complicated industry as are ever likely to be compiled under present conditions.

Finally, there is the problem of classification. The 1886 wage census gives separate figures for a very large number of different grades, but Mr. Finlay Gibson groups those employed underground into six classes, as follows:—

- I. Piecework Coal-getters (excluding the amount paid to any person on day wage).
- II. Coal-getters on day wage.
These two classes are composed of the men who actually get the coal, whether entirely by hand or partly as the result of previous work by machines. They are all highly skilled qualified workmen, and in most districts the pieceworkers far outnumber the day-wage men.
- III. Putters, Fillers, Hauliers and Trammers.
This class is composed of:—

- (a) Semi-skilled men who are qualifying as coal-getters by working under their orders at filling the coal into the tubs, and/or pushing them out to the siding by hand, i.e. fillers, hand-putters or trammers.
- (b) Semi-skilled men who drive the ponies and horses which pull the tubs from the face to the mechanical haulage in the main road, but do not actually assist the coal-getters, i.e. pony putters and hauliers.

This class is sometimes paid piecework and sometimes day rates.

IV. Timbermen, Stonemen, Brushers and Rippers.

This class is composed of skilled men who do the timbering which supports the roof in the roads, and also at the face in those coalfields where it is not done by the coal-getters themselves ; and men who drive roads to give access to the coal, or who cut away the roof floor or sides of roads which are closing up, or who cut away the roof at the face when the coal has been got out, in order to make sufficient height for further operations. In some cases it is clear from the comparative level of the wage figures that their semi-skilled and unskilled assistants are also included in Mr. Finlay Gibson's returns, but in most cases these appear to be included in Class VI. This class is sometimes paid piecework and sometimes day rates.

V. Deputies, Firemen and Examiners.

These titles all refer to the men who are responsible under the Mines Acts for the general safety of the mine. They have to go down before the coal-getters and examine the working places, testing for gas, etc. They have to obtain a certificate under the Act, and they act also in a general way as under-foremen. Hence they are generally regarded as officials of the Company, and not as ordinary workmen. They are all paid by time and very often a standing weekly wage.

VI. Other Underground Labour.

This covers men working on the mechanical haulage, the assistants to the timberers and stonemen, pumpmen and engine-men, men who attend to the cage at the bottom of the shaft (onsetters or hangers-on), men who are responsible for the tram lines (rolleywaymen or roadmen), and general labourers. These men are nearly all paid day rates and many of them a standing weekly wage.

But as a matter of fact, the methods of labour and the systems of payment vary so much between different coalfields that in each coalfield one finds peculiarities within this nominal classification. The 1886 wage census figures have, however, been combined to suit this classification. Classes I, II and V are fairly distinct as a rule, but Classes III and IV are very composite groups, and especially in the latter case it is not always easy to make a trustworthy comparison. Class VI is, of course, especially difficult, but a general knowledge of the working of a pit shows that the bulk of it must consist of unskilled men, though they may be doing a great variety of different kinds of work. The figures for labourers in the 1886 census may therefore be compared with this Class VI in Mr. Finlay Gibson's tables, though it is possible that his averages are slightly higher than they would be if all men who were not labourers pure and simple were excluded. But if a knowledge of the methods of work, and the organization and payment of labour in any coalfield is necessary to interpret the figures for that coalfield, it is still more necessary when comparing the wages of these different classes in different coalfields; otherwise the grossest misconceptions are bound to arise. The next section therefore contains a sketch of these matters.

III. METHODS OF WORK AND OF PAYMENT IN THE DIFFERENT COALFIELDS

The principal operations in mining coal have already been outlined in a general way,¹ but little was said to indicate the extent to which the subdivision and specialization of labour is carried in different districts. This varies enormously, and makes it very questionable how far any particular grade in one district can strictly be compared with the same grade in another. Thus the work at the coal face may all be done by one man, or by an infinite variety of different combinations of labour. In Northumberland and Durham the hewers, as a general rule, get the coal down and fill it into tubs; brushing and ripping (i.e. taking

¹ See above, pages 7-12.

up the roof or floor to make more room for further operations) are done by another distinct grade, the timbering by another, the putting by another, and the continuation of the tram lines as the face recedes by yet another. It is curious in this connection to find that there is no distinct class of semi-skilled men, or learners, working as fillers, but the explanation lies probably in the fact that subdivision of the skilled work in the interests of efficiency has gone so far that this further step would neither be practicable or economical. But there has been a great change in the methods of working the coal. Thirty or forty years ago "pillar and stall" working was almost universal; to-day there is practically none in Northumberland, and in Durham the process of conversion has also proceeded a very long way. Where the old method is still in use, the normal practice is one man in each place on each shift. In longwall working the stalls are usually opened out 6 yards either way from a central gateway, and two men work in each stall at a time. As nearly all the pits in both counties have always worked two winding shifts, and in Durham during recent years the great majority three,¹ the men on the first shift are relieved by their "marrows" or partners. The successive sets of men share the whole proceeds from their working place equally between them, a practice which undoubtedly leads to a much greater output per man than where the men on one shift do not share with their marrows, as is the case in the two-shift pits of Cumberland. The practice of "cavelling" or drawing lots every quarter for the different working places is also peculiar to this coalfield, though it is to be found in isolated cases elsewhere. For a discussion of the merits of these practices, see Appendix III, Note II. Where coal-cutting machines and conveyors are in use, there is no separate class of men employed. Owing to the cavelling system a man may be working with the machinery in one quarter, and in the ordinary way by hand the next. When working with machinery, the men on each shift all share together, or sometimes work in sets of

¹ See Appendix V.

four. The basis rates for "fillers," that is hewers working with machinery, were fixed in both counties higher than those existing for ordinary handwork. This is probably not due to the fact that more skill is required—the reverse is generally the case—but the higher rates were fixed with the idea of removing any prejudice with which the men might view the introduction of machinery, and also possibly because it involved the substitution of team work on a much larger scale, with its inherent objections for the really good workman. Some of the employers are now beginning to desire the formation of a separate grade, and the end of the system of cavelling as regards places where machinery is used, but no change has so far been made. Normally, however, the hewers, as has been said above, get down the coal and fill it into the tubs, which are then fetched either by hand or pony putters. Thirty years ago hand-putting to the siding was the regular procedure, but now in Northumberland there is very little except in the pits on the banks of the Tyne, and in Durham ponies are used much more, especially of course where the longwall method is employed. In this connection it should be noted that the average size of the tubs has probably nearly doubled during the period, and as a consequence, while there is less hand-putting, the transit workers are no longer boys, but strong young men from eighteen to twenty-five; this matter will be referred to later in connection with actual rates of wages. Hand-putting is usually paid by the piece—so much per score of tubs—and much of the pony putting also. In bord and pillar working the hewers will often do their own ripping, for which they may be paid separately, or it may be included in the tonnage rate, but in longwall this is done at night by a special class of stonemen, who work by the piece and make high earnings, as in Scotland. They are also assisted by semi-skilled men or learners. The arrangements for timbering at the face are altogether peculiar to this coalfield, for it is done by the firemen, or, as they are called locally, deputies. The hewer will, of course, in the absence of the deputy put in a piece of timber which the latter will have prepared, if it is necessary for

his immediate safety, but the deputy is responsible for this work, which is presumably included in a broader interpretation than usual of his duties in regard to the safety of the mine. Hence in this coalfield the deputy has to supervise only fifteen to eighteen men, and his position cannot be compared with the deputies or firemen in other coalfields, who do no real manual work, and who may have as many as sixty to eighty men under their charge. In Northumberland the deputies also draw the timber (i.e. when the roof is allowed to sink behind the face), but in Durham this is usually done by a separate class of specialists ; it is of course very strenuous and often dangerous work. The repair work in the roads is all done on day rate ; there is the usual small class of expert timberers, and a much larger class of semi-skilled men. All the other duties are performed by men who have specialized in that particular kind of work, and we may repeat once more that in no other coalfield were there anything like so many distinct grades of labour, even in 1914, and this would be even more true thirty years ago.

The methods of working in Cumberland contrast sharply with the minute subdivision of labour in Northumberland and Durham ; indeed Cumberland would be at the extreme opposite end, if all the coalfields were to be ranged in sequence as regards this matter. The " Main Band " seam is worked almost exclusively by the bord and pillar method, but it is gradually becoming exhausted. The other seams are mainly worked longwall, and hence the last thirty years has seen a great relative increase in this latter method. But the existing system of longwall working still bears many signs of the older method. The stalls are, as a rule, opened out about 6 yards either side of the gateway, and there are only two men to a stall. In the bord and pillar working there are two men to a place, and they share equally and do all the work in the place. The price per ton usually includes a certain distance for hand-putting or, as it is termed locally, " Trailing," but ripping and timbering is paid at definite rates, while there are extra allowances if the tubs have to be traileed a greater distance or up a gradient.

Exactly the same conditions prevail in the longwall working. Again, in contrast with Northumberland and Durham, where double shifts are worked, though in Cumberland this is the case only with the Whitehaven group and one or two other pits, the men on the first shift do not as a rule share with the men on the second shift. There can be little doubt that this means a smaller production, and therefore smaller earnings,¹ but the Cumberland men have steadily refused to accede to the owners' wishes on this point. In few other coalfields does custom seem to me to play such a prominent part as in Cumberland, not only in regard to this matter, but to everything else.

In the absence of a separate class for hand-putting or filling,² it may well be asked how the hewers learn their work. This is done by means of an apprenticeship system. An experienced hewer will work a place with a learner, paying him a gradually increasing day-wage, and only after he has been two full years at the face, is he deemed efficient; after that he shares equally with him or another man in the ordinary way. As regards other work, the prevalence of faults necessitates a good deal of stone-driving; this is done by a separate class at so much a yard. All the work connected with the transit of the coal from the face to the shaft is time-work, as also all the repair work in the roads, which is a very big item in the Whitehaven Collieries, where, as has been said, the distance "in-bye" runs into miles. There is the usual small class of highly-skilled timberers, earning nearly as much as the hewers, and the much larger class of semi-skilled men and labourers.

In Lancashire the coal is mostly worked on the longwall method. Each coal-getter, or as he is locally termed "collier," works by himself, and pays a day wage to a lad or young man called a "filler," who assists him generally. The collier does all the work at the face, and is usually responsible also for the putting, as is shown by the fact

¹ See Appendix III, Note II.

² This class is really negligible in numbers—only fifty-seven are returned in Mr. Finlay Gibson's tables out of a total of 5,907 adults underground.

that in the majority of pits the price per ton¹ includes so many yards of "trailing" (generally up to 250). In some pits "drawers," who do nothing else but hand-putting, are employed. This general arrangement, as will be seen later, is much the same as that in South Wales, but in Lancashire the "haulier" is a man working the mechanical haulage, and not a horse-driver as in South Wales. The "putter" class in our tables will, therefore, consist of such "fillers" as are over twenty-one years, and the horse-drivers; the great majority will be time-workers, though a certain proportion of the fillers share the collier's piecework earnings with him in some agreed proportion.² Similarly, there are many cases where two men work together and share equally, but then both may be considered colliers.

Since the hewers do all the work at the face, and as they do all the stone-driving needed, it follows that Class IV in our tables will consist only of repairers working in the roads. The number of skilled men is, therefore, smaller than usual, and as most of this work is done on a day wage, the average for this class will be lower relatively to the other grades than in other coalfields, where the high piece-work earnings of many stonemen raise the average considerably.

Owing to the fact, which will appear later, that it is impossible to get reliable statistics of wages for the Yorkshire coalfield, there is no point in giving any detailed account here of the methods of work. As has been said in Chapter II, there are really two coalfields in this county, and even within each of these there are districts differing considerably in geological conditions and in the general level of wages. The methods of coal-getting are in consequence equally varied, and with this brief note we pass on to consider the rest of the Midland coalfields, which, though some districts have special characteristics, may yet for this purpose be treated as a more or less homogeneous group.

¹ The price per ton in Lancashire covers also all the work that may be incidental to the actual getting of the coal, e.g. ripping, timbering, etc.—hence there is not the complexity of the South Wales price lists where the hewer is paid separately for the different items in his work.

² A common practice seems to be that the filler receives from the collier day wages, and a small bonus if the hewer's earnings exceed a certain sum.

Longwall is, and always has been, the usual method of working throughout the Midlands,¹ except in South Staffordshire, where special methods have to be employed for the Dudley seam, which is 30 feet thick. A special account of South Staffordshire is given in Appendix III, Note III, as it is peculiar in many respects. In the middle of the last century, various forms of the "butty" system were prevalent. A "butty" may be defined as a sort of sub-contractor, who agrees with the coalowner to bring the coal to the surface for so much a ton, and employs men at day rates, pocketing the difference between his costs of production and his contract price with the owner. In early times the butties used to work whole pits; they found the necessary tools and even owned the horses. In the 'eighties there were still some pits in North Staffordshire worked in that way, but over the Midland coalfields generally the sphere of the butty was becoming more and more limited, and the name was gradually becoming obsolete. At the most they employed twenty men on day rates, working one or two stalls. On Cannock Chase and in Nottinghamshire and Leicestershire, the stalls are smaller than in Warwickshire, parts of North Staffs and Derbyshire; hence in the former coalfields there are not usually more than six to eight men in a place. In these districts, therefore, the usual method in the 'eighties was for two men to undertake the working of the coal, employing holers and loaders on day rates and dividing the net proceeds equally between themselves. It is hardly necessary to point out in detail the iniquities of sub-contracting systems; in coal-mining the difficulty of adequate supervision from the owner's point of view is obvious, and the butty system saved a lot of trouble. But since the butty's profits depended very largely, if not entirely, on the amount of "drive" which he could put into the men, the system involved much bullying, and moral and physical degradation. Moreover, it was most unjust that a man should not get a reward

¹ The methods of working and payment are very similar in North Wales, and have changed in the same way. Hence no special account of that coalfield is given.

commensurate with his efforts, even if those efforts were not given freely, but extorted by *force majeure*. Gradually the men rebelled, and with the growth of trade unionism the amount of sub-contracting has been reduced, with the result that the number of pieceworkers has been steadily on the increase. By 1913 the normal method of working in North Staffs was three or four men, called "contracting colliers" or "contractors," sharing equally, and paying two assistants on day rates; in the Cannock Chase area one or two "stallmen," sharing equally, and employing three or four others at day rates; in Warwickshire four stallmen, employing as many more men on day rates; in Nottinghamshire and Derbyshire there were about equal numbers of pieceworkers and day-wage men at the face; and in Leicestershire three "chargemen," employing three or four others on day rates. Since 1913 in all districts the increase in the numbers of pieceworkers has continued.¹ But the butty system has "died hard." A well-known trade unionist sums up the problem, I think very justly, in the following words: "Many former butties have never ceased to hanker for the flesh-pots of that system, and the employer encourages it, because of the fact that many butties were bullies, and to put it mildly they undoubtedly did supervise, spur on, and speed up. Though biassed in its favour, I must confess that an 'all-sharing' system tends to bring down the average efficiency to that of the worst man of the group."

In the Midland coalfields the men at the face do all the work in their stalls; there are no subsidiary classes of specialists, as in Northumberland and Durham. At the same time there is naturally some degree of specialization when five or six men are working in the same place. In the 'eighties the undercutting of the seam, or "holing," was usually done by men who worked under the contractors, but on what was really task work. The holer's "stint" was a yardage measurement, for which he got paid a

¹ In 1919 an agreement was signed in Notts and Derby that all experienced men at the face must share equally. This is, however, stated by the unions to be an agreement now honoured mainly in the breach.

definite price ; he would be expected to do so many stints in a day, generally two, and when he had done them, he would go. But holing has lost its characteristic as a special occupation, largely because the price paid by the contractor for holing, and the price of the coal produced were never equitable, and payment by the stint has largely disappeared. In a general way, however, each man of the gang tends to do certain particular jobs ; for instance, the least experienced men would be mainly engaged in filling the coal into tubs, while the timbering would probably be done by the stallmen themselves. There is not much hand-putting, as ponies are normally brought up to the siding close to the gate of the stall. Hence the putter class consists mostly of young men employed as fillers, and horse-drivers. It may be remarked that in Nottinghamshire the system of sub-contracting was also applied in many cases, until quite recently, to the underground transit of the coal. "Getters-out" were men who contracted at piecework rates to convey the tubs from a given district of the pit to the shaft bottom, and they paid day rates to the necessary number of horse-drivers and mechanical haulage men. These getters-out employed sub-foremen, known as "corporals"—a name which has survived though they are now paid by the management. But the classification of the stallmen's assistants is probably somewhat arbitrary ; these young men may often be classed as coal-getters on day wage. The repair work in the roads is all done on day wages ; there is the usual class of highly-skilled timberers, and a much larger group of semi-skilled men. The amount of stonework varies greatly between the different districts ; in North Staffs it is done by a class of specialists called "crutters," who earn relatively high wages, but elsewhere it is done by ordinary coal-getters, though the tendency is for a man to specialize. It is nearly all bargain work—so much a yard. Finally, there is the usual number of other grades, a few skilled but mostly unskilled, who form Class VI in Mr. Finlay Gibson's classification.

The methods of working in Somersetshire and the Forest of Dean are somewhat peculiar, but as these are such small

districts, it has been thought better to relegate description of them to an appendix. Reference should therefore be made to Appendix III, Note IV.

In South Wales the coal is usually worked right along the face, but each collier (i.e. coal-getter) has a gate of his own; his section of the face is probably 6 to 7 yards either side of his gate. The collier is responsible for doing all the work in his place, and all the repair work to the road, or, as it is termed, "back to the parting." The tonnage price does not cover all the necessary work of different kinds which he has to do; there is a separate price for each kind of job, and hence the great complexity of the price lists in South Wales.¹ Against the principles of specialization, as applied, for example, in Durham, it is urged that if for any reason (e.g. shortage of tubs), the collier cannot for the moment get down more coal, he need not lose time and money, for he can always get on with other kinds of work.² The collier is assisted generally by a helper or "butty," as in Lancashire. Probably two-thirds of these are under twenty-one years of age. They are paid day wages by the collier. In some pits, however, it is common for two experienced men to share alike. Whilst this combination of the collier and his helper has always been the normal method of working, the method of payment has changed considerably, for in the 'eighties sub-contracting, as in the Midland coalfields, was still quite common, particularly in the older districts, and it has needed great efforts on the part of the unions to stamp out this practice. To-day all colliers are on piecework, unless for some special reason (e.g. when a new price list is being negotiated), and in any case the collier is paid his day wage by the management, and not by any sub-contractor.

The collier is responsible for filling the coal into the tubs, and they are then fetched right from the face by

¹ Mr. Hugh Bramwell, in his evidence before the Sankey Commission, stated that the South Wales collier makes 26 per cent. of his earnings on work other than actual coal-getting and filling.

² But the real reason lies in the fact that the coal in South Wales will not usually stand when it has been undercut, and the roof and sides are more liable to collapse.

the haulier, who is not, as in many districts, a man working the mechanical haulage, but a horse-driver.¹ In South Wales the hauliers are a definite class of men, who remain at that work all their lives, and they have a marked *esprit de corps*. There is therefore next to no "hand-putting" in South Wales, although sometimes the haulier may think it easier to push the tub along from the face to the parting, instead of bothering to bring in his horse and turn him round.

The repair work in the roads is done by timberers—much of it on piecework—each of whom has an assistant, to whom he pays day wages. These, like the collier's helpers, are learners, but timbering is heavy and often dangerous work, and is not suitable for mere boys. Hence a timberer's son will often start as a collier's helper, and then when he is about nineteen or twenty years old, if he wishes to follow in his father's footsteps,² he will leave the face, and become a timberer's assistant. This is also the adult labourer's path to promotion into a skilled occupation. There is a definite class of rippers, who also generally have unskilled assistants.

In Mr. Finlay Gibson's classification, therefore, Class III presumably contains the hauliers and about one-third of the collier's helpers, the remainder being boys. Class IV contains the timberers and rippers and men driving stone headings, while their assistants come in Class VI.

In Lanarkshire the general method is the longwall. As a rule each hewer works for himself, and is assisted by a "drawer," who thus corresponds to the filler in Lancashire, or the butty in South Wales. In his evidence before the Joint District Board, under the Minimum Wage Act in 1912, Mr. Smillie, President of the Scottish Miners' Federation, said that "commonly" a hewer paid his drawer a fixed daily wage, and that drawers were sometimes boys, often boys working with their fathers, and sometimes men; in other cases two hewers often worked together and did

¹ The men on the mechanical haulage are called "riders," or "rope-changers" in South Wales.

² The different grades are as much an hereditary occupation as mining in general. This is true of most districts, but of South Wales in particular.

the hewing, filling and putting between them, and shared the total wages earned. Again, there was a second class of drawer, who did no filling and merely handled the tubs, and this class corresponds therefore to the putters proper. He stated that this work was very often paid by the piece, and then they "work harder and earn more money." The rates for this second class of drawer varied, however, enormously according to the nature of the workings, whether uphill or flat. The name "filler" is in Lanarkshire confined to those men who load coal on to conveyors. They generally work in gangs, and may be paid day wages by a contractor, or by the management, or they may share their joint earnings equally. Very often the fillers have to do special timbering to enable the conveyor to work, and this is very skilled work and consequently highly paid. The "fillers" presumably fall into Class III in Mr. Finlay Gibson's Returns. But as regards Classes I and III, generally speaking, the classification is not likely to be as exact as might be desired, and the latter class will contain men in many cases not only doing very different work, but receiving payment in different ways and at widely varying rates.

In Lanarkshire, and throughout Scotland generally, a special class follow the hewers, and during the night cut away the roof, floor, or sides, in order to make sufficient room for further operations. This is not quite such skilled work as that done by the hewers, but is extremely arduous. The "brushers," as they are called, are in Lanarkshire generally big, raw-boned Irishmen. The work is nearly all paid by the piece. The timbermen may be divided into two classes; a small but highly paid group, who do the large timbering at the face, very often on piecework, and a much more numerous group called "repairers" who work in the roads, and are generally paid on day rates. They are assisted by "reddsmen"¹ also as a rule paid on day rates. According to our normal classification, all these men—brushers, timbermen and reddsmen—should be included in the stonemen class, though a certain proportion of the

¹ So called because in the Scotch phrase they "redd" away, that is clear away, falls of the roof and sides, etc.

reddsmen are only labourers and would come under Class VI. It may be interesting to note the classification of grades given by the owners to the Joint District Board for the purpose of the Minimum Wage in 1912. This classification was based simply on similarity in rates of pay, and is in ascending order :—

- Class I.* Unskilled oncost workers, bottomers (= onsetters), pony drivers and drawers, haulage men, pumpers and miscellaneous.
- Class II.* Drawers on piecework, reddsmen, repairers or timbermen, and roadmen (= rolleywaymen).
- Class III.* Brushers, stone men and mine drivers.
- Class IV.* Hewers, machine men and conveyer men (i.e. fillers).

If this order is correct, and it is open to many queries, it is evident that Mr. Finlay Gibson's classification cuts right across it in certain cases. The subdivision of labour has been carried in Scotland to a much more advanced degree than, for instance, in South Wales and many of the English Midland Counties, but it falls considerably short of the standard set by Northumberland and Durham. It is this question of classification which is most difficult if comparable statistics for different groups of grades are to be given for Scotland. There is an enormous variation, both in the methods by which the work is done, and by which it is paid for.

One or two changes during the period may here be remarked. The first has a distinct bearing on rates of wages. By 1913 approximately 22 per cent. of the total output of Scotland was obtained by mechanical coal-cutters, and the percentage for Lanarkshire alone would be greater than this, but an exact figure is not available. In 1888 the "iron man" was of course unknown. This means, of course, that in many respects the work of the coal-getter has changed considerably. It is impossible to estimate whether the getter by hand is more or less skilled than the machine man.¹ In Durham, as we have seen, the machine

¹ This does not refer to the man who operates the machine, but is used to mean hewers working with a machine.

man is rated higher than the hand worker, but owing to the cavelling system a man may be hewing by hand one quarter, and working with a machine the next. In Lancashire the hewers do all the work at the face, ripping, timbering, etc., and the undercutting is merely one of a series of skilled operations. In Lanarkshire there is no cavelling, and there are to some extent subsidiary classes for doing the ripping and timbering, so that the question becomes more important. The only thing, however, that can be said about it, is that in Lanarkshire no distinction has been drawn between hand workers and machine men; and there we must leave this highly technical question.

The second change only affects weekly earnings, not shift rates of wages. Before 1898 the pits in Lanarkshire were open for work six days a week; the hewers did much as they personally pleased, but in times of bad trade some degree of organization was exerted, e.g. the unions only allowed four days in 1894. In 1898, however, the five-day week was established, and except during the Boer War, and during the Great War, has never since been exceeded. Oncost workers have, of course, always worked six days. It may be noted that the six-day week has prevailed in Fife and Ayrshire, though in the former the length of the shift was fixed at eight hours as far back as 1870, a standard which Lanarkshire and Ayrshire, where the length of the shift was over nine hours, did not reach till 1899. As, however, the average number of days worked in Lanarkshire in 1890, according to the Parliamentary Return, was only 5·2, the reduction in 1898 appears to have been more formal than real.

CHAPTER IV

STATISTICS OF WAGES

SECTION I. THE PERIOD 1888-1914

THE last section of the previous chapter shows clearly, despite its inevitably superficial nature, that the methods of working, and of payment, vary enormously between different coalfields. Comparisons must therefore be made with care, and with a proper appreciation of their limitations. Subject to this, we can now resume our examination of the actual movement of wages as distinct from the recognized percentage variations. In the following table there are six vertical columns for the different classes of workmen. Each coalfield has three horizontal lines: the first shows the estimated wages per shift in 1888, the second these adjusted in accordance with the percentage increase in 1914, and the third the actual wages in 1914 as taken from Mr. Finlay Gibson's returns. The second line therefore shows what the wages would have been in 1914, if they had moved only according to the recognized percentage alterations, while comparison with the third line shows whether or no they actually have done so. The figures for all the coalfields have been brought into one table, simply for convenience: the object is not to compare the level of wages at the two dates in different coalfields, for which certain modifications are necessary, but to ascertain whether within each coalfield wages have or have not been exclusively regulated by the recognized percentage variations. This table merely shows what changes occurred among the different grades within each coalfield separately:—

WAGES IN THE COAL INDUSTRY

TABLE.

DISTRICT.	¹ CLASSES.						
		I.	II.	III.	IV.	V.	VI.
² <i>Northumberland :</i>							
	1879	5/-	—	3/6	4/-	5/3	3/-
Calculated . .	1914	7/8	—	5/4	6/1	8/-	4/7
Actual . . .	1914	8/5	7/3	6/5½	6/8½	8/2	5/4½
² <i>Durham :</i>							
	1879	4/2	3/7½	3/8	4/-	4/8½	2/11
Calculated . .	1914	7/1 ⁵	5/8½ ⁵	5/9	6/4	7/5	4/7
Actual . . .	1914	8/3	6/4	6/10	7/9½	7/5	5/1
³ <i>Cumberland :</i>							
	1888	4/5	4/2	3/5	4/1	4/4	3/2
Calculated . .	1914	6/5½	6/2½	5/0½	6/1	6/4	4/8
Actual . . .	1914	8/2	6/9	5/11	7/-	7/3	5/8
<i>Lancashire :</i>							
	1888	5/- to	4/9	3/9 to	—	4/9	3/- to
		5/3		4/3			3/7
Calculated . .	1914	8/3 to	7/10	6/2 to	—	7/10	4/11 to
		8/7		7/-			5/11
Actual . . .	1914	8/7	7/8	6/2	6/8	7/6	5/10
<i>North Wales :</i>							
	1888	4/1 ⁶	3/6	—	3/9	3/6	2/8
Calculated . .	1914	7/- ⁶	5/9	—	6/2	5/9	4/5
Actual . . .	1914	8/-	6/4½	5/10	6/2	7/3	5/5½
<i>North Staffordshire :</i>							
	1888	4/10	4/4	3/9	4/2	4/11	3/-
Calculated . .	1914	8/-	7/2	6/2	6/10	8/1	4/11
Actual . . .	1914	9/1	7/2	6/4	6/10	8/7	5/7
<i>Notts & Derbyshire :</i>							
	1888	5/4	4/6	4/-	4/8	4/5	3/5
Calculated . .	1914	8/10	7/5	6/7	7/6	7/3	5/8
Actual . . .	1914	9/10	7/-	6/8	7/-	8/-	5/8½
<i>Somersetshire :</i>							
	1888	3/3	2/6	2/11	2/6	2/6	2/3
Calculated . .	1914	5/-	3/7	4/-	3/7	3/7	3/5
Actual . . .	1914	5/9	5/-	4/5½	5/4	5/2	4/4½

¹ Class I is composed of piecework coal-getters, Class II of coal-getters, on day wage, Class III of putters, etc., Class IV timbermen, stonemen, etc., Class V of firemen, and Class VI of labourers. See Chapter III, Section II.

² See Appendix IV, Note I.

³ See Appendix IV, Note II.

⁴ All figures for 1888 refer to the beginning of that year.

⁵ It may be noted that the percentage is not applied direct to the County Average in the case of Durham hewers, but for every 1½ per cent. variation they get ¾d. on or off. As 1½ per cent. on the basis rate is actually only .625d., it is clear that at a high percentage level they gain considerably by this arrangement, which was really only intended to facilitate calculation.

⁶ Includes fillers.

TABLE.

DISTRICT.	¹ CLASSES.						
		I.	II.	III.	IV.	V.	VI.
<i>Forest of Dean :</i>							
Calculated . . .	1888	4/6	3/11	3/4	3/11	3/11	2/10
Actual . . .	1914	6/1	5/3	4/6	5/3	5/3	3/10
	1914	6/9½	5/7	4/8	5/8	6/-	4/6
<i>South Wales :</i>							
Calculated . . .	1888	4/10	4/4	3/4	4/2	4/4	2/10
Actual . . .	1914	7/7	6/10	5/2	6/6	6/10	4/5
	1914	9/4	6/5 ²	6/7	7/8	7/9	5/9
<i>Lanarkshire :</i>							
Calculated . . .	1888	4/7	4/-	4/-	4/6	4/-	3/2
Actual . . .	1914	8/3	7/2	7/2	8/1	7/2	5/8
	1914	8/3	7/7	6/6	9/-	7/2	6/6

Of all these districts, Lancashire and Lanarkshire alone show no considerable difference between the calculated and the actual wages in 1914. Despite a fairly voluminous amount of information, some of which is set out in Appendix IV (Note III), it is difficult to make a reliable estimate of wages in Lancashire in 1888, and if allowance is made for this, it may be concluded that there has been little or no alteration in the basis wages to which the percentages have been applied. In Lanarkshire, despite great variations in the level of wages at different pits,³ the wages of piece-work coal-getters have moved exactly with the recognized percentage alteration, and the discrepancy in the case of day-wage coal-getters is unimportant, whether in respect of its cash amount or of the numbers of men affected. But if the coal-getter on day-rate received 4s. in 1888, which was in the nature of an agreed basis rate, and is therefore well substantiated, it is surprising to find the putter class averaging the same. Probably that figure refers only to putters on piecework, since most of the day-wage putters were paid by the hewers, and they

¹ See footnote 1 on previous page.

² Legal minimum for this class, 6s. 11d., which throws doubt on Mr. Finlay Gibson's returns. The numbers affected are, however, insignificant.

³ See Appendix IV, Note VI.

would not therefore appear in the wage census returns. The Coal Controller gives a figure of 7s. for piecework putters in 1913, which compares closely with the calculated 7s. 2d. in the table. Similarly, with the aid of the Coal Controller's figures, we can reconcile the difference shown for Classes IV and VI. He gives 9s. 1d. for Class IV pieceworkers only, as compared with Mr. Finlay Gibson's figure of 9s. for both piece and time-workers. There is in reality a decided gap between the piecework earnings of the brushers, and the day rates of the repairers and reddsmen. But if these latter are not included in Mr. Finlay Gibson's returns for Class IV, they must be under "Others," and therefore the figure of 6s. 6d. for Class VI is rather too high to be representative of labourers, and thus comparable with the 1888 returns. In view of these modifications, the correspondence between the wages in 1888, plus percentage and the actual earnings in 1914, is most remarkable. It can be concluded with a fair degree of certainty that there has been no advance in standard rates throughout the period. It is to be regretted that separate figures for 1914 are not available for the different districts comprising the Scottish coalfield. Ayrshire by itself might show an increase, for the tendency has been to raise the standard to the Lanarkshire level, particularly since the equalization of hours in 1899; wages in Fifeshire may have risen also with the great development in recent years. But it is probably true that on the whole basis wages have not altered appreciably in any of the three main Scottish coalfields.

We may therefore feel fairly confident that in pre-war times in Lanarkshire and Lancashire wages have been more or less exclusively regulated by the recognized percentage alterations.

Next we may draw attention to the fact that no figures have been given for Yorkshire. Mr. Finlay Gibson gives separate tables for West Yorks and South Yorks, for while the men are organized in one union, there are two independent Employers' Associations. He gives the following figures for June, 1914 :—

	West Yorks.	South Yorks.
Coal-getters :		
Piece	8/11	10/3
Day	7/5	7/11
Putters	5/6	7/2
Stonemen	7/3	8/4
Firemen	8/2	8/10
Labourers	6/3	6/8

It may therefore be concluded that any attempt to combine these districts would be purely artificial, and consequently liable to grave error. Unfortunately, however, the 1886 wage census gives only one table, and the supplementary information is far too scanty to enable separate estimates to be made, as was possible in the case of Northumberland and Durham, where the differences are nothing like so great as in this case, though it is true that both the Yorkshire districts come under the one Federated Area Board for percentage variations. While it is probable that in 1886 there was not so great a difference in wages as in 1914, yet after considerable study of the information available,¹ I have come to the conclusion that no detailed comparison can be reliable, and that it is not worth while attempting to follow the same procedure as has been adopted for other coalfields. At the same time I venture to hazard a guess, for it can be little more, that basis wages in West Yorks have remained absolutely stationary, except possibly in the case of labourers, who may have benefited slightly from the 1912 Minimum Wage Act, while in South Yorks there has been an increase amounting at the most to 1s. per shift, which is not perhaps as much as might be expected in view of the recent great development in that district.²

¹ It is not clear to which district much of the supplementary evidence refers.

² The reason why there is so little supplementary information is that it is only quite recently that the union has been able to make general agreements for either district with the respective Employers' Associations. Despite the early foundation of trade unionism in this coalfield, which was much to the fore in the agitation for the appointment of check-

Similarly, all the South Midland Counties have been omitted: Cannock Chase, South Staffs, Warwickshire and Leicestershire. In the 1886 Wage Census Returns these coalfields are grouped together, and while, as we have seen, they have certain homogeneous characteristics, these do not include similarity in the general level of wages. The problem of determining the different rates in 1888 from the supplementary evidence, which in the case of South Staffs is most comprehensive and reliable, but almost non-existent for Leicestershire, is most difficult and perplexing. A more detailed account is given in Appendix IV (Note IV), and here we merely state our general conclusion that there has been little or no alteration in basis wages except in Warwickshire, where the increase has probably been very great indeed. We thus add Cannock Chase, South Staffs and Leicestershire to Lancashire and Lanarkshire, as being coalfields where wages have been exclusively regulated by the recognized percentage variations.

In the following diagram the percentage increase in actual wages is compared with the recognized percentage increase on the standards for each of the remaining coalfields, including Warwickshire, though the estimates in this case are by no means as reliable as could be desired. The vertical lines show for each class of workers the percentage increase in actual earnings, measured by the vertical scale on the left-hand side, and the horizontal line cutting across the vertical lines marks the recognized percentage increase on the standards. The extra increase secured by each grade is measured in terms of the percentage increase on the

weighers in 1860-62, it was still a very small power in 1886, for at that date there were only 7,500 members out of a total of over 53,000 employed underground. Negotiations were conducted with the management of each pit separately, and while therefore there were agreed price lists at a good many pits, there are no records of district wages because such information was not required for the ordinary purposes of negotiation. Presumably also the difference in the level of wages between the two districts and the rapid succession of new employers, made wage negotiations on a County basis as difficult as would have been an attempt to establish any system on the model of Northumberland and Durham. The minimum wage rates under the 1912 Act are still the only binding agreement as regards wage rates in general, other than the price lists at particular pits.

Per Cent

80

60

40

20

Hewers Nominal
% increase on
standard.

Nominal % Increase
on standard.

x
Northumberland.

Classes 1 2 3 4 5 6

100

80

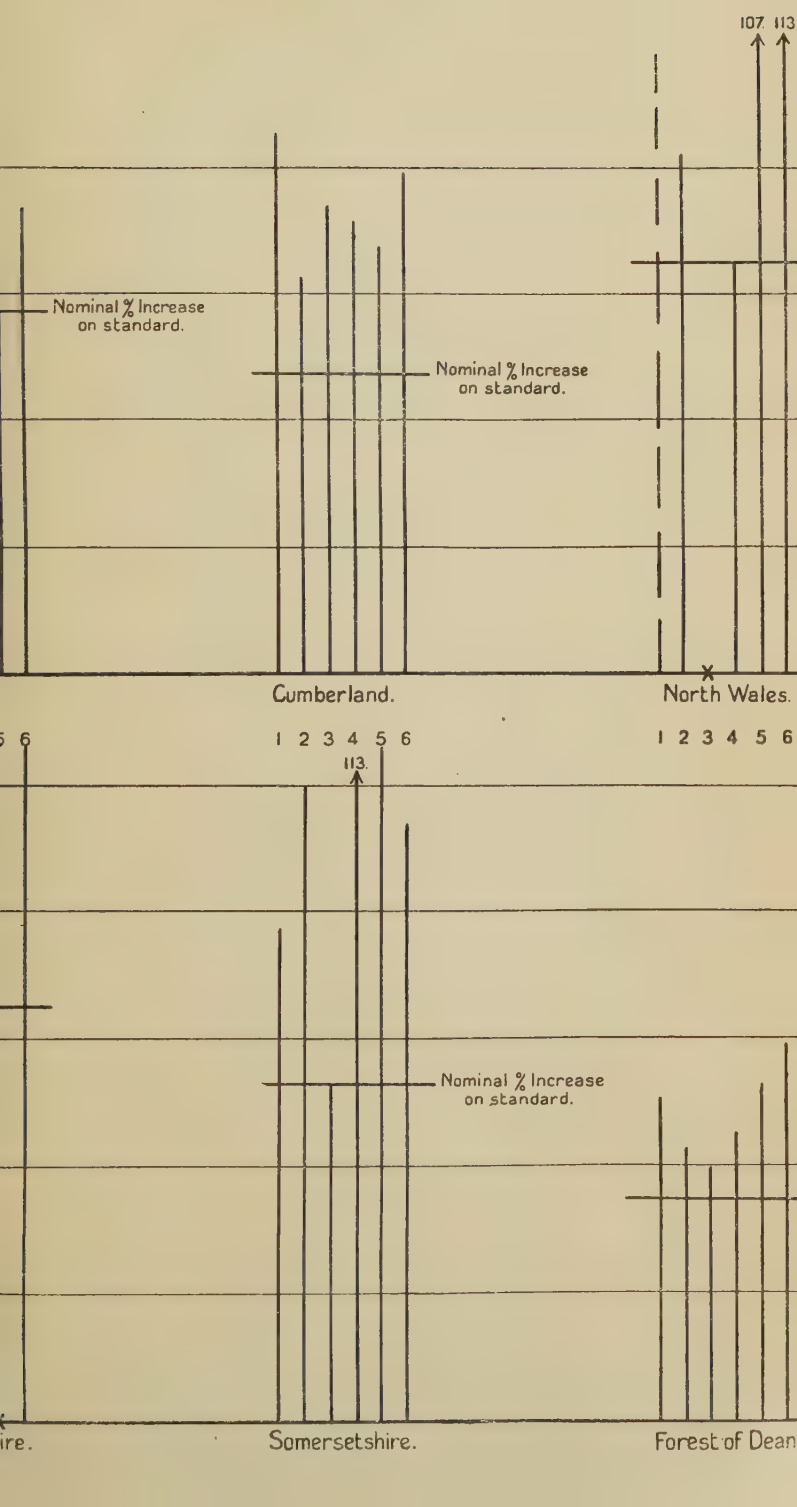
60

40

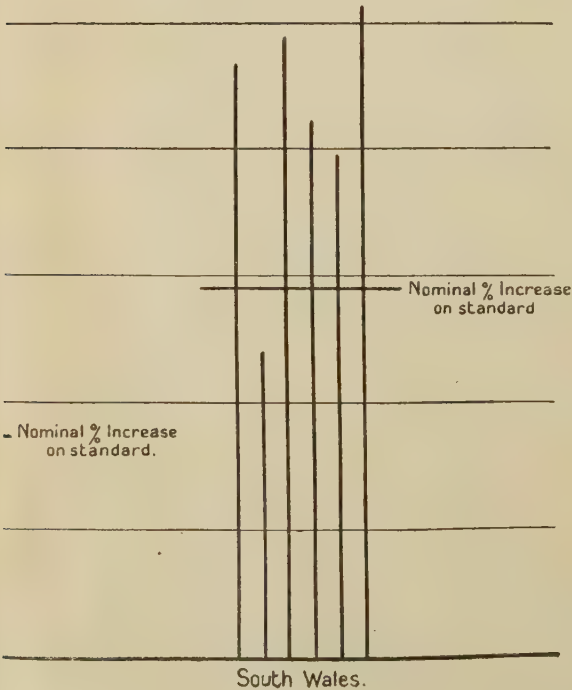
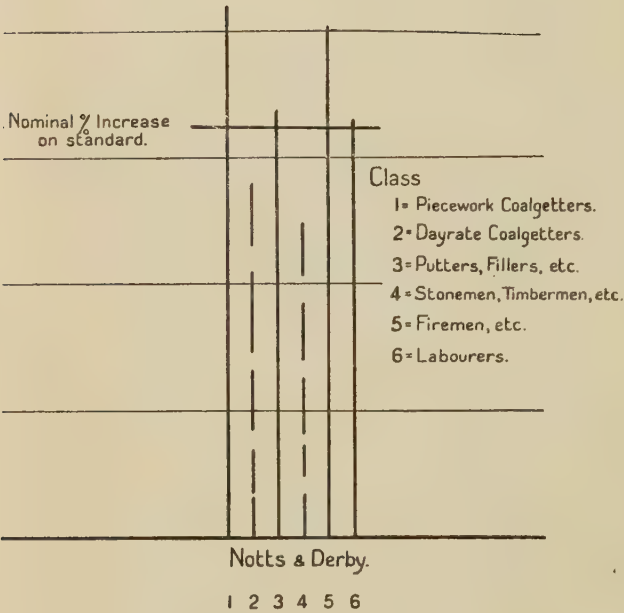
20

Nominal % Increase
on standard.

North Staffs.



(See page 77.)



standards, by the distance to which the vertical lines extend above the horizontal line. It must be clearly understood that the diagrams cannot be compared with each other as showing the relative positions of the different grades in the various coalfields, e.g., because the coal-getters' line for Durham is longer than that for Northumberland, there is no implication that the hewer in the former coalfield earns more than in the latter: the diagrams simply show for each coalfield separately the increase in earnings, as compared with the recognized increase in rates. In each case there are six vertical lines corresponding to the six classes, reading from left to right. Where sufficient statistics are not available for any grade, the fact is represented by a cross (X), and no line is drawn: where the statistics have not been found reliable an interrupted line is shown.

These diagrams show an extraordinary variation not only as between the different coalfields, but as between the classes in the same and different coalfields. It is evident that a great complexity of factors has been at work. In a few cases it is possible to track down some of the causes of the extra increase. Thus, in Northumberland and Durham, part at least of the extra advance secured by piecework hewers and putters (Classes I and III) must be regarded as transitory, for 1888 and 1913 were years of very bad and very good trade respectively, and, as was noted in Section IV of Chapter II, earnings in prosperous times regularly tend to rise considerably above the 5 per cent. limit on the County Average. If comparison of two good years or two bad years had been made, it is probable that the extra increase would be nothing like so great. Again, in Northumberland some basis rates have been formally increased owing to the alterations in hours,¹ and the higher rates paid to men working with machines would also tend to raise the average in both counties, though the effect would not be at all considerable in either case. Attention has already been drawn to the increased age of the putter class, and thus we are hardly here comparing like-with-like. The growing amount of piecework ripping in Northumberland, consequent on the change over from the

¹ See Appendix IV, Note 1.

pillar and stall to the longwall system, is at least a possible and likely cause of the increase in the average of the stonemen class ; and the same would be true in Durham, though unfortunately there are no comparable statistics, as Mr. Finlay Gibson's figure almost certainly does not include the semi-skilled men engaged on stonework and timbering. On the other hand, the deputies (Class V) are all time-workers, and it is therefore not surprising to find little or no extra increase. The labourers (Class VI) probably benefited considerably by the 1912 Minimum Wage Act. On the whole, if an exact allowance could be made for the alterations in the methods of working, and in the case of the unskilled for the effect of the Minimum Wage, it seems probable that wages in these coalfields have been regulated pretty closely and effectively by the County Average and agreed basis rates system.

In Cumberland all classes show a large extra increase, though the hewers' day rate tends to lag behind, mainly owing to the fact that it had become more or less standardized before the others. Evidently some general cause has been at work ; probably the recent expansion of the local iron and steel industry, and the establishment of coke and by-product plants, created a shortage of labour, thus giving to the miners a stronger bargaining position.

Even allowing for the uncertainty of the 1888 wage statistics for North Wales,¹ it is clear that there has been a very large extra increase. At that date, as we have seen in Chapter II, Section III, there was little or no organized regulation of wage rates at the different pits. There were no agreed price lists till 1900, but then others followed quickly, and in 1907 minimum basis rates for the coalfield were agreed upon. No other coalfield, except Northumberland and Durham, had so complete a list at that time. Whether the rates then fixed represented a great advance in wages is not clearly ascertainable, but statistical comparisons show that there was little extra increase between 1907 and 1913.

¹ The 1888 figure for piecework coal-getters is probably too low, due to the inclusion of a certain number of fillers. This would make the per cent. increase less.

In Notts and Derby the development of the top-hard seams probably accounts for the extra increase gained by the piecework hewers, and the firemen's rate has followed, so to speak, in sympathy, for this class is recruited from the hewers. The new pits had to attract skilled men from the old, and as is clearly shown in the 1912 minimum wage negotiations, the wages paid to skilled men in the top-hard, were distinctly higher than in the soft-coal pits : a difference which grows less through the semi-skilled grades, and is hardly noticeable in the case of the unskilled. The average earnings of piecework coal-getters were also raised by agreements for a County "make-up" rate for abnormal places, which were made in Derbyshire in 1908-9, and in Notts directly after the strike in 1912. The Legal Minimum rates under the Act of 1912 were not fixed high enough to affect any class materially, but these abnormal place agreements which were distinctly higher than the rates subsequently fixed under the Act, did represent a genuine benefit to the hewers.

In North Staffs the decrease in the amount of sub-contracting, and the levelling up of the western district to the eastern, probably accounts for the extra increase secured by the piecework hewers, while the firemen's rates would tend to follow. The semi-skilled classes on day rates remained stationary, partly through the force of custom, since the hewers pay their assistants and not the employer, and partly because it is difficult to raise a basis day rate, when once it has been established as a definite sum of money. The rise in the labourers' rate must be attributed almost entirely to the 1912 Minimum Wage Act.

The very large extra increase in Warwickshire is not unexpected in view of the tremendous development of this coalfield. As has been said above, the statistics are not very trustworthy, but the small rise of the putter class should not be regarded as invalidating the other figures. All over the Midlands the loaders or fillers are young men qualifying to become hewers ; they are generally paid by the hewers for whom they work, and the force of a customary wage is very strong.

The course of events in Somersetshire is somewhat unique, and a fuller account is given in Appendix IV, Note V. In all other coalfields the tendency has been for piecework earnings to rise, due to improvements of the tonnage rates by local bargaining, and the higher level of piecework earnings has caused a corresponding, though sometimes tardy, rise in day rates. In Somersetshire, however, attention has been concentrated on the hewer's day rate, other day rates have risen *pro rata*, but piecework earnings have tended to lag behind. This sequence is quite unusual.

In the Forest of Dean,¹ while statistical evidence is meagre, it is probable that the extra increase secured by all grades has been brought about primarily by the fact that higher rates have been paid in the new steam-coal pits. All classes have benefited to approximately the same extent, for the putter class should probably show a greater increase. This may be compared with the effect of the development of the top-hard seam in Notts and Derbyshire. There, only the skilled men benefited, and it is possible that in the Forest some larger and less definite cause has been in operation as well, to raise the less skilled grades.

From the employers' returns, placed before the Minimum Wage Board in 1912, we have reliable statistics of wages in South Wales at that date, i.e. before the Act came into operation. These figures show increases beyond the recognized percentage increase as follows:—

	Per cent.
Piecework Coal-getters	14
Putters, etc.	14
Stonemen, etc.	6
Labourers	21

The hewers had probably secured their extra increase through local bargaining over price lists, for which there had been great scope owing to the rapid expansion of the coalfield. The abolition of sub-contracting would also tend to raise earnings. The hauliers (horse-drivers) in South Wales form the bulk of the putter class, and efforts to improve their status had been continuous for many years

¹ See also Appendix IV, Note V.

before 1912. The semi-skilled grades, in so far as they are represented by the very composite stonemen class, had not risen so much, but unskilled wages increased the most of all, presumably owing to the continuous necessity for attracting men to the mines. The extra increase is not, generally speaking, so much as might be expected in view of the rapid development, but it must not be forgotten that South Wales miners have large families, and the need for imported labour has not been so great as might be imagined. If the extra increase secured by 1912 be compared with the extra increase secured by 1914, it is evident that there was a distinct advance between 1912 and 1914 in addition to the percentage rise. The Minimum Wage Act unquestionably accounts for this. Details will be given later, but, broadly speaking, the miners in South Wales gained at one blow a rather larger extra increase than they had gained during the preceding twenty-five years of local negotiations and local bargaining.

In those coalfields where wages have apparently been regulated solely by the recognized percentage variations on the standards, there will have been no change in the relative position of the different classes. In the other coalfields, it may be said that there was a distinct tendency for the skilled time-worker to earn less in 1914 proportionately to the skilled pieceworker than in 1888. The only exceptions to this are North Wales and Somersetshire, and it is perhaps significant that these are both poor and backward districts. No clear generalization can be made as regards the semi-skilled workers; in Durham, Cumberland, North Staffs, Warwickshire, Somersetshire and the Forest of Dean, they had relatively lost ground, but the reverse is the case in Northumberland, and to a small extent in South Wales. On the whole the putter class had not gained as much as the hewers, partly perhaps because it consists mainly of learners, and the idea of a customary wage has great force, and partly because in several districts they had gained on the hewers in the matter of shorter

hours. It would appear, however, that the unskilled had gained about the same as the hewers, since their relative position was not appreciably different in any district.

The piecework coal-getters and the firemen class may be taken as representative of skilled piece and time-workers respectively : the putter class as representative of the semi-skilled, and Class VI of the unskilled. These terms are of course used in a purely relative sense, for there is really no regular worker in any industry who does not quickly acquire a considerable degree of skill. Taking all the coalfields together, the average wages for these classes, according to our estimates for 1888 weighted by the numbers employed in each coalfield, compares with Mr. Finlay Gibson's averages for 1914 as follows :—

	Piece- work Coal- getters.	Firemen.	Putters.	Labour- ers.
1888	4/9	4/6	3/7½	3/1
1914	8/10	7/8	6/5½	5/9½
Increase per cent. . .	86	70½	78	88
Relative positions :—				
1888	100	95	76	65
1914	100	87	73	65½

These calculations confirm the general inference outlined above. The skilled time-worker's rates lagged considerably behind the advance in piecework earnings, while for the reasons already given the putter class was similarly affected, though not to the same extent. The pieceworkers had secured their increase as the result of a variety of causes—successful bargaining over new price lists, more efficient tools and methods of working, and perhaps too in many districts as the result of the shortened hours of labour. The labourer had gained, presumably owing to the increasing pressure created by the policy of a “reasonable standard of life,” and in many districts by the necessity for maintaining or obtaining an adequate supply of labour. In some coalfields they had gained slightly more than the skilled

pieceworkers, in others less, but on balance about the same. It must not be assumed, however, without further proof that there is here any causal connection.

Comparisons of the general increase in wages as between the various coalfields, must be made with care, and the selection of suitable dates is most important. For at times the export trade may be more or less depressed when the home trade is booming, and *vice versa*, and, as we have seen, some coalfields are almost entirely confined to one or the other. Fortunately for us, however, both in 1888 and 1914 trade conditions were everywhere more or less similar. It is only possible to speak in relative terms, but on this understanding it may be asserted that at the end of 1887, no one branch of the industry was in an appreciably different condition to the rest, since all were so much depressed that conditions could hardly be worse. Similarly, in the autumn of 1913 all branches were in a wonderful state of prosperity ; prices then reached a maximum, and began to weaken slightly as the year 1914 drew on. By June, however, there had been no decrease in the percentage level as compared with the end of 1913, except in Durham $2\frac{1}{2}$ per cent. and in Scotland $7\frac{1}{2}$ per cent. off the standards. We can therefore take the figures for 1888 and 1914 and compare them without risk of serious error on this important point of varying trade conditions.

Another aspect of the same factor, however, is the seasonal fluctuation in the house-coal trade. In the summer months the demand of course slackens. This is met in most house-coal districts by working fewer shifts per week, but in Cumberland at the beginning of the period, and in Somersetshire and the Forest of Dean, wages were often reduced $2\frac{1}{2}$ to 5 per cent. off the current percentage on the standards, the reduction being withdrawn in the autumn. The 1886 Wage Census was taken in October, and the available records do not show whether the summer reduction was still on : in June, 1914, it was of course in operation. In any event the effect is not great, and as comparisons can only be made approximately, no allowance need really be made.

Attention, however, must be paid to variations in the

amount of wages received in kind. In most coalfields the miners have always received cheap or free coal for their own use, though this is generally limited to householders. But the monetary value is relatively small, and would not affect shift earnings more than three-halfpence to twopence at the most. Similarly, except in Northumberland and Durham, the provision of housing or the giving of a money allowance in lieu is a rarity, and would have little effect on the average for the coalfield as a whole. Again, there are various customs in regard to tools, lights and explosives : in some coalfields all these are free, in others the men have to buy them, or deductions are made from their weekly earnings. Hitherto no account has been taken of these things, for within each coalfield all grades are more or less equally affected, and there has been little or no alteration in the customary local arrangements. But when comparing the level of wages in different districts the matter becomes important. Some addition must certainly be made for rent allowances or free houses in Northumberland and Durham, for this is an appreciable amount even in the case of shift earnings. But it is very difficult to deal with the other items, for their monetary value, unless fixed by agreement at a definite and usually quite nominal sum, has in almost all cases been the subject of continual controversy between employers and men. The small difference in the relative increase in wages between different coalfields, which would result from making allowances for these additions or deductions, can for practical purposes be neglected altogether. In Northumberland and Durham, however, all married men get a free house, or a money allowance in lieu. For the purposes of the Workmen's Compensation Act, the allowance was fixed by the Northumberland Conciliation Board at 5s. per week for house and coals, and 4s. per week for rent and coals : this means that 10d. to 1s. must be added to the actual shift earnings of all married men. But we must disregard the free coal, for this is given in most other districts, and since these allowances only apply to married men, it would not appear right to add more than 8d. to average shift earnings at any

date. The cash value of these allowances for rent probably did not increase appreciably from 1888 to 1914. The same applies to Durham also. These additions have been made in the following table, though it must be admitted that such procedure is somewhat rough-and-ready. It is, however, the only possible method of dealing with these intricate matters.

At the risk of some repetition, the following table is inserted to show the wages of piecework coal-getters and labourers in the different districts, together with the percentage increase in each case. It is not practicable to make comparisons between the various coalfields in regard to other classes of labour, since they are so differently composed owing to the wide variety of the methods of working and payment. Even the actual coal-getter's work really differs considerably, but the classification is at least definite. Where there is ground for doubting the accuracy of the increase shown the figures are bracketed :—

	1888 Wages.		1914 Wages.		Per cent. Increase.	
	Skilled.	Unskilled.	Skilled.	Unskilled.	Skilled.	Unskilled.
Northumberland ¹ .	5/1	3/4	9/1	6/-	79	80
Durham ¹ . . .	5/-	3/9	8/11	5/9	80	54
Cumberland ¹ . .	4/5	3/2	8/2	5/8	85	79
Lancashire . . .	5/2	3/4	8/7	5/10	66	(75) ²
North Wales . .	4/1	2/8	8/-	5/5	98	103
Notts and Derby .	5/4	3/5	9/10	5/8	84	66
North Staffs . .	4/10	3/-	9/1	5/7	88	86
South Staffs . .	4/6	3/4	7/1	5/10	(57) ²	(75) ²
Cannock Chase . .	5/-	3/-	8/6	5/7	(70) ²	(86) ²
Warwickshire . .	5/-	3/-	10/1	6/2	102	106
Leicestershire . .	4/3	3/6	7/-	5/10	65	66
Somersetshire . .	3/3	2/3	5/9	4/4	77	94
Forest of Dean .	4/6	2/10	6/9	4/6	51	59
South Wales . .	4/10	2/10	9/4	5/9	93	103
Lanarkshire . .	4/7	3/2	8/3	6/6	80	(105) ³

¹ The figures for these coalfields given previously have been adjusted for 1888. ² This should probably be about 65 per cent.

³ This should probably be about 80 per cent.

The Forest of Dean shows the smallest increase, and Warwickshire the largest. The latter had of course expanded enormously during the period, but a generalization that the amount of increase is connected with the rate of expansion will not hold good, for the Lanarkshire production had not grown appreciably faster than the Forest, though the increase in wages was very much greater. Yet Northumberland, which expanded nearly twice as much as Durham during the period, shows a much greater increase in wages, when allowance is made for the lucky "windfall" obtained by the Durham hewers. On the other hand, North Wales shows a large increase in wages against a very small increase in production relatively to most other coalfields. Nor is there any clear difference between the exporting districts and the rest. The causes of the movements in wages as between different coalfields, are equally as complex as between the different grades of labour.

It may be noted that the order of the coalfields is very different, according to the wages of the skilled, or of the unskilled men. In 1888 the range of wages is nothing like so great as it was in 1914, in the case of the skilled, and it is rather surprising therefore to find that the reverse is the case in regard to the unskilled. This tendency is particularly interesting in view of the movements since 1914.

But while an analysis of this kind is useful, and necessary for a correct understanding of the difference between actual and nominal movements of wages over a long period, it does not enable us to correct the nominal fluctuations year by year. In some cases the extra increase has been secured as the result of some definite alteration, in others it has come about gradually and steadily. Only a few generalizations seem to emerge: that there is no ground for the assumption that over a long period, wages are regulated exclusively by the formal percentage variations; that, on the contrary, there is very often a wide discrepancy; that there has been no case of a decrease in basis rates, at any rate over the period as a whole; that there has been little or no uniformity in the amount of the extra increase

secured, as between different districts, or between different grades, though it may perhaps be said that the skilled and semi-skilled day-rate workers have not benefited so much as the skilled pieceworkers, which is what might naturally be expected under the circumstances; while, lastly, that there are only a few coalfields where the uniformity of extra increase points to some general factor affecting labour in that district. Nor is there any visible common reason why there has been no extra increase in those coalfields, where wages have moved exactly with the formal percentage increase. Lanarkshire, Lancashire, and South Staffs are all coalfields, so to speak, well on in middle age, and the last named is approaching exhaustion, but Cannock Chase, and particularly Leicestershire, have expanded considerably during the period. *Vice versa*, Cumberland and Somersetshire, where production has grown slowly, show a large extra increase. So far and no further can these problems be taken.

II. THE PERIOD 1914-1920

Wages continued to be regulated nominally by percentage variations on the standards up to September, 1917, when the industry came under Government control, and advances were given in the form of universal flat-rate war wages. After June, 1914, there is no information in regard to earnings until November, 1918, to which date the second set of Mr. Finlay Gibson's statistics refer. Between September, 1917, and November, 1918, two universal flat-rate war wages of 1s. 6d. each, were made to all adults working underground. In the following table the formal percentage increase on the standards is shown for each district in Column I; the actual increase for piecework coal-getters and labourers up to September, 1917, calculated by deducting the war wages from Mr. Finlay Gibson's figures for November, 1918, is shown in Columns II and III; while Columns IV and V show the actual increase up to November, 1918. The method of ascertaining the wages in September, 1917, is of course approximate only.

It will be seen that in many coalfields there was a considerable increase beyond the nominal percentage increase on the standards, but there is no evidence to show at what period they occurred: the probability is, however, that the process was a gradual one, due to the many changing conditions of the war period, though in certain cases, as for instance, when the new standards were fixed in 1915, a definite upward movement took place. While, therefore, some of the extra increase shown may really have taken place after September, 1917, this will not materially falsify the impression of the effect of the universal flat-rate advances conveyed by the table. The war wage was given per day, that is 18s. per week, but the average number of shifts worked at that period was about $5\frac{1}{2}$, so that it really involved an increase of 3s. 3d. to shift earnings:—

DISTRICT.	Nominal per cent. Increase up to 1917 (on stan- dards).	Actual per cent. Increase.			
		September, 1917.		November, 1918.	
		Piecework Coal-getters.	Unskilled.	Piecework Coal-getters.	Unskilled.
	Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.
Northumberland . .	47	66	43	105	103
Durham	32	44	37	89	100
Cumberland . . .	42	74	69	114	126
Lancashire . . .	32 $\frac{1}{2}$	42	31	79	87
North Wales . . .	"	38	38	79	98
West Yorks . . .	"	43	33	79	85
South Yorks . . .	"	45	34	76	82
Notts & Derbyshire	"	44	34	77	91
North Staffs . . .	"	51	37	87	97
South Staffs ¹ . .	"	72	63	117	118
Cannock Chase . .	"	53	36	91	94
Warwickshire . . .	"	59	35	91	88
Leicestershire . .	"	86	37	132	93
Somersetshire . . .	32	74	44	130	119
Forest of Dean . .	33	57	30	105	102
South Wales . . .	46	65	51	100	107
Scotland	43	63	42	103	92
Average of all districts . .		55 $\frac{1}{2}$	42	92 $\frac{1}{2}$	98 $\frac{3}{4}$
Cost of living		80-85		120-125	

¹ The figures for this district are not as reliable as might be desired.

Comparing Column I with Columns II and III it is evident that in all districts the hewers secured an increase greatly in excess of the nominal advance on the standards. The amount varied considerably in different districts, and there does not seem to have been any uniformity between districts with similar market conditions, e.g. those producing steam coal mainly for export, though on the whole it was least in the Midland house-coal districts. A common cause was probably the shortage of skilled men, due to enlistment, and the rearrangement of labour which consequently ensued, with the result that the hewers were concentrated more and more on actually getting the coal, while additional semi-skilled labour was put on at the management's expense. But it is evident that other factors were at work over and above such a common cause, even though the degree of enlistment varied considerably in different districts. On the other hand, in most coalfields the unskilled men got little extra increase, and with the exception of North Wales, in no coalfield did they get as much extra as the hewers. Here again enlistment was undoubtedly a factor, but the condition of the unskilled labour market was another of great importance, e.g. Cumberland and South Staffs, where the metal trades were very prosperous, and the wages of semi-skilled and unskilled labour rose rapidly. Comparison of the increase secured by other grades of underground workers, shows that skilled men on piecework gained most, while time-workers generally lagged behind in descending order according to their skill.

The universal flat-rate war wages produced great effects.¹ Comparison of Columns IV and V shows that the unskilled had caught up the skilled pieceworkers in almost all districts, and passed them in the more important. There was still a great diversity of increase between different districts, but the universal advance had levelled this up considerably. It operated in a manner diametrically opposite in nearly

¹ Under Government control universal advances could be given because there was complete financial centralization. It was simply a question of deciding how much wages were to be increased and adjusting prices accordingly, for demand was virtually unlimited.

all respects to the movements, which had taken place under the old district system of regulating wages by percentages on the different standards.

It will be seen that in November, 1918, wages still lagged considerably behind the official estimate of the increase in the cost of living, though not so much as in September, 1917. No grade in any coalfield had, however, secured an advance in wages appreciably in excess.

There is no comprehensive information as to earnings after November, 1918, and we can therefore study nominal changes of rates only. It would be most interesting if figures of earnings were available for a later date in a similar form to Mr. Finlay Gibson's returns, for we have seen that in the period 1914-18 many grades secured a considerable extra increase in their earnings, and this tendency may have continued, or on the other hand, an opposite tendency may have set in. Some of the extra increase in certain coalfields was caused by changes in the standard rates or by their more general application, and may therefore be considered permanent. But much more of the increase is probably the result of the altered conditions of working due to the shortage of labour during the war. As we have said, the hewers were concentrated more and more on the actual coal-getting, while it is a well-known fact that normally a hewer who works a long stretch of face is able to produce more coal with the same expenditure of effort than a hewer who is confined to a smaller stretch, though the cost of production for the whole pit is of course likely to be higher. The proportion of coal-getters to all underground decreased from 41 per cent. in 1914, to 33 per cent. in November, 1918. On the other hand, in 1919 and 1920 men were returning from the army in large numbers, and there were continual complaints from the men that the employers were not fulfilling their managerial functions in a competent manner, e.g. shortage of tubs, working of thin seams which would have been closed down if profits had not been guaranteed, etc., etc., and large numbers of hewers were supposed to be "on the minimum." In reply the employers pointed to the growing amount of absentee-

ism, and the decline in output per head. It may be noted that the measurement of the amount of effort expended by the hewers at different periods is a most difficult problem. Even a slight acquaintance with the many factors involved serves to show that many of the statements, published at the time, were calculated to mislead the general public. But while no completely satisfactory measurement is possible, it is probably true that in 1918 and more particularly in 1919 and 1920, the miners were considerably influenced by the general post-war conditions of lassitude common to labour in most industries, and that some employers at any rate, with their eyes fixed on the end of controlled profits, were not quite "playing the game," nor, while profits were guaranteed, exercising their managerial functions with the greatest possible keenness and efficiency.¹ Wages were relatively high, though not higher than the official measurement of the increase in the cost of living, and the unions were in a strong strategical position, while the very high level of prices, particularly in the export trade, stimulated them to make use of it. Any estimate of the general relation between nominal and actual wage changes must be little better than sheer guesswork, but it seems probable that in 1919 and 1920 there was not much extra increase in earnings though it is likely that the gains from 1914-18 were maintained. In any event the best that can be done under the circumstances is to add the subsequent advances in rates to Mr. Finlay Gibson's returns for 1918. These advances were as follows:—

- I. *January, 1919.* A universal flat-rate advance of 2s. per shift awarded in March, 1919, retrospectively, as a result of the recommendation of the Coal Industry Commission ("Sankey Award").
- II. *March, 1920.* Increase of 20 per cent. on the wages

¹ At the same time it should be realized that the general disturbance in the industrial world caused by the war period had increased the normal difficulties of management, so that, for example, the shortage of tubs, etc., was in many cases no more the fault of the management than of the miners.

paid prior to September, 1917 (minimum advance to adults 2s.).

- III. *November, 1920.* Universal flat-rate advance of 2s. per shift, as a result of the terms by which the strike was settled.

(In July, 1919 the Seven-Hours Shift was introduced, but piece-rates were adjusted in compensation and day wages remained the same.)

The percentage increase in March, 1920, was given deliberately in that form as an attempt to check the tendencies produced by the previous universal flat-rate advances: the Miners' Federation had demanded another universal flat-rate advance of 3s. But the provision of a minimum advance of 2s. neutralised this corrective to some extent as between different grades, because, taking average wages, the 20 per cent. alone would have meant less than 2s. to the unskilled workers in every coalfield, and in a large number to the semi-skilled workers. As between different coalfields, however, it preserved the *status quo* in the case of skilled workers, though it continued the process of "levelling," in the case of semi-skilled and unskilled.

The advance of January, 1919, approximately brought up the level of wages to the increased cost of living. The advance was, however, given by the Government at the end of March when the cost of living index number had temporarily fallen to 110, but the Sankey Commission had recommended it, on the ground that the miners' standard of life before the war had been too low and needed permanently raising. The advance of March, 1920, gave all grades, and particularly the semi-skilled and unskilled, a distinctly greater increase than the cost of living at that date, but as that rose very rapidly during the following months, the Miners' Federation claimed another advance, mainly on the ground that the workers had a right to share in the high profits then being made on exported coal. Both the Government and the miners naturally made comparisons with the cost of living, and this aggravated the dispute, for the Government would not concede the miners' claim that the "Sankey Award" had created a new stan-

dard of life, and that measurements should be made on that basis and not on the basis of pre-war wages. The agreement which terminated the strike, provided for an immediate universal flat-rate advance of 2s., and that in future there should be national changes varying with the total monthly output of all the coalfields according to an agreed scale. This resulted in a further advance of 1s. 6d. per shift on January 3, 1921, but that only continued until January 31, and further decreases followed, so that wages may be said to have reached the maximum with the advance of November, 1920.

The following table shows the effect of all the advances from June, 1914, to December, 1920, on the average wages of the different grades as calculated from Mr. Finlay Gibson's Returns :—

AVERAGE WAGES OF DIFFERENT GRADES.

	WAGES.				Cost of Living.	PER CENT. INCREASE.			
	Skilled Piece-Workers (Hew-ers.)	Skilled Time-Workers (Fire-men.)	Semi-Skilled Workers (Put-ters.)	Un-Skilled Workers					
	Col. I.	Col. II.	Col. III.	Col. IV.		Col. I.	Col. II.	Col. III.	Col. IV.
1914	8/10	7/8	6/5	5/9					
Sept. 1917 ¹	13/9	11/3	9/6	8/2	80-85	55½	46¾	48	42
Nov. 1918	17/-	14/6	12/9	11/5	120-125	92½	89	98¾	98½
Jan. 1919	19/-	16/6	14/9	13/5	120	115	115	130	133
Mar. 1920	21/9	18/9	16/9	15/5	130	146	144½	161	168
Nov. 1920	23/9	20/9	18/9	17/5	176	169	170½	192	203

¹ 1918 figures less War Bonus.

By November, 1918, the semi-skilled and unskilled had secured a slightly greater percentage increase than the skilled workers. This gap was very much widened by the further flat-rate advance in January, 1919, reduced slightly by the percentage advance of March, 1920, but was again increased greatly by the flat-rate advance of November, 1920. By January, 1919, skilled pieceworkers

had lost their advantage over the skilled day-wage men, and thereafter there was no appreciable difference between them.

The following table shows the relative positions of the different grades as calculated from the previous table :—

SKILLED PIECEWORKERS—100 at each date.

	Skilled Timeworkers.	Semi- Skilled.	Unskilled.
1914. .	87	73	65
September, 1917. .	82	69	59½
November, 1918. .	85½	75	67
January, 1919. .	87	77½	70½
March, 1920. .	86½	77	71
November, 1920. .	87½	79	73½

At the end of 1920 the skilled day-wage men were in the same position, relatively to the skilled pieceworkers, as in 1914, but the semi-skilled had improved their position by 8·2 per cent. and the unskilled by 12·8 per cent. From 1918 these figures represent earnings, on the assumption that no grade secured an extra increase, or at any rate a disproportionate increase. As we have said above, there are no adequate statistics to show the relative movement of rates and earnings after 1918; it may be that the additional earnings gained during the war were not maintained; but it is more probable on general grounds that they were maintained up to the end of 1920, though not increased further. If rates of wages only were compared, that is, if Mr. Finlay Gibson's figures for June, 1914 were taken as the rates current in 1914 and the various advances added to these figures, the percentage increase for almost any coalfield, or for any grade of labour, would not be so high, but the general advance made by the semi-skilled and unskilled workers, relatively to the skilled, would be considerably greater. The variations in the increase

of average earnings between 1914 and 1918 vitally affects the general position.

The following table shows the grouping of the different coalfields according to the average wages of skilled men in 1914 and in November, 1920 :—

SKILLED MEN.

<i>June, 1914.</i>		<i>November, 1920.</i>	
10/3 to 9/10	South Yorks, Warwickshire, Notts and Derby.	26/5 to 25/9	Warwickshire, South Wales.
9/4 to 8/11	South Wales, Northumberland, North Staffs, Durham, West Yorks.	25/1 to 24/9	South Yorks, Northumberland.
8/7 to 8/-	Lancashire, Cannock Chase, Scotland, Cumberland, North Wales.	24/5 to 23/5	Notts and Derby, Cumberland, North Staffs, Scotland.
7/1 to 6/9	South Staffs, Leicestershire, Forest of Dean.	22/10 to 22/7	Cannock Chase, Leicestershire, Durham, West Yorks.
5/9	Somersetshire.	21/10	South Staffs, Lancashire.
		20/7	North Wales.
		19/11	Forest of Dean.
		19/3	Somersetshire.

As compared with November, 1918, the order two years later is the same, but the range had considerably diminished, for in November, 1918, Warwickshire was nearly 45 per cent. higher than Somersetshire, as against 37 per cent. in November, 1920. This latter figure compares with 78 per cent. in 1914. Excluding the four lowest districts in 1914, and the three lowest in 1920, all of them comparatively quite small, the highest district was nearly 28 per cent. above the lowest in 1914, as against only 21 per cent. in 1920. It was these small districts which benefited so much by the universal advances under Government control: the average wage of piecework coal-getters in Somersetshire rose 233 per cent. as against only 145 per cent. in South Yorks. But the total increases in the different coalfields are not in any strictly inverse proportion to their relative pre-war level of wages, as the following table shows: the districts are in descending order according to the average wages of piecework coal-getters in 1914 :—

WAGES IN THE COAL INDUSTRY

District.	Total per cent. Increase 1914-20 Piecework Coal-getters.
South Yorks	145
Warwickshire	162
Notts and Derby	146
South Wales	176
Northumberland	172½
North Staffs	161½
Durham	155
West Yorks	153
Lancashire	154½
Cannock Chase.	168½
Scotland	184
Cumberland	200
North Wales	157
South Staffs	208
Leicestershire	226
Forest of Dean	195
Somersetshire	233
Average of all	169

(Estimated from Mr. Finlay Gibson's returns.)

This table again shows the great effects of the varying increases in the different districts during the period 1914-1917, and of the variations in earnings in excess of rates, for universal advances would of course have resulted in a continuously increasing percentage rise.

The next table shows the grouping of the different coal-fields according to the average wages of unskilled men in June, 1914, and in November, 1920 :—

UNSKILLED MEN.

<i>June, 1914.</i>	<i>November, 1920.</i>
6/8 to 6/- South Yorks, Scotland, West Yorks, Warwickshire, Northumberland.	18/10 to 18/6 Cumberland, South Staffs, Scotland.
5/10 to 5/5 Lancashire, South Staffs, Leicestershire, Durham, South Wales, Cumberland, Notts and Derbyshire, North Staffs, North Wales.	18/2 to 17/7 South Yorks, South Wales, Northumberland, Warwickshire, West Yorks.
4/6 to 4/4 Forest of Dean, Somersetshire.	17/2 to 16/9 Leicestershire, Lancashire, North Staffs, Durham, Notts and Derbyshire, Cannock Chase, North Wales.
	15/6 to 15/1 Somersetshire, Forest of Dean.

The order in 1920 was of course the same as two years before, since the nominal percentage advance in March, 1920, actually resulted in a universal increase of 2s. to all unskilled workers. The range had however considerably diminished. In November, 1918, Cumberland was over 41 per cent. higher than the Forest of Dean, but only 25 per cent. in November, 1920. This latter figure compares with 54 per cent. in June, 1914. Excluding the Forest of Dean and Somersetshire at both dates, the highest district in 1914 was 23 per cent. above the lowest, as against 12½ per cent. only in 1920.

The following table summarizes the changes in the range of average wages between the main coalfields comparing 1914 with 1920 :—

PERCENTAGE DIFFERENCE BETWEEN LOWEST AND HIGHEST COALFIELDS.

	June, 1914.		November, 1920.	
	Skilled.	Un-skilled.	Skilled.	Un-skilled.
All Principal Coalfields . . .	78	54	37	25
Do. less 4 lowest in 1914 and 3 lowest in 1920 as regards skilled, and less 2 lowest un- skilled at both dates . . .	28	23	21	12½

It will be seen from the first line that in 1914 the wages of skilled men in the highest coalfield were no less than 78 per cent. higher than the wages of skilled men in the lowest, but only 37 per cent. higher in November, 1920. It may also be pointed out what great differences result from the exclusion of the few small coalfields, where wages were lowest, as in the second line.

The Miners' Federation in November, 1920, had certainly made great headway with their policy of a standardization of wages in all coalfields, but they still had a long way to

go as regards the average earnings of skilled pieceworkers. There are many interesting problems raised by a close study of wages in this industry, but a comparison of the varying course of wages in the different coalfields up to 1917, with the movement towards standardization during the period of Government control, is second to none either in interest or in importance.

III. THE PERIOD JANUARY, 1921—JULY 1922

There were signs before the strike began in October, 1920, that the export market was weakening, and that home industries generally were entering on a period of severe depression. But few people can have realized the suddenness and degree with which export prices were about to drop, least of all the Government, which found itself making a more than handsome profit one week, and a devastating loss in the next. This is hardly an exaggeration of what took place, and in February, 1921, the Government suddenly declared its intention of restoring the industry to private control on March 31. The date previously fixed for decontrol was August 31, and the owners and the Miners' Federation had been quietly discussing general schemes for the permanent regulation of wages in the industry, according to the provision to that effect in the agreement which had terminated the strike in November, 1920. The Miners' Federation proposed that a National Wages Board should be established, and that a National Wages Pool should be created by a levy on the tonnage produced at each colliery, so that future changes might be equalized throughout the whole industry, and not vary widely between each district as before the war. Arrangements were also proposed for a "standard" rate of profit, and a division of any surplus in agreed proportions. We shall discuss the problem of the pool in the last chapter. Here all that need be said is that when the premature cessation of control was announced, the owners intimated that they were not prepared to continue discussion on these proposals, since they intended to insist on a complete

reversion to the methods in operation before the advent of Government control. Subsequently they issued figures of the wages which they were prepared to pay after March 31. A slight increase was offered in South Yorkshire, but elsewhere they demanded reductions, which were in some districts enormous.

The details of the subsequent struggle are still fresh in the public mind, and need not be given here, while the fundamental changes, contained in the terms of settlement, are discussed briefly in the last chapter. With the collapse of the export market, output was reduced from January onwards, and wages began falling under the terms of the agreement of November, 1920.¹ When work was resumed at the beginning of July, 1921,² after the three months' dispute, reductions were limited under the terms of the agreement. In the export coalfields the full reductions allowed took effect during the next three months, but in Yorkshire and some of the Midland districts there was little or no fall. In October the subsidy period came to an end, and very severe reductions took place in most districts. Each successive month then brought further reductions. On January 1, 1922, wages in Cumberland, the Forest of Dean and South Wales were down to the minimum as fixed by the 1921 agreement, namely 20 per cent. above the "standard" rates at March 31, 1921, plus the percentage current in July, 1914; and Northumberland, Durham and Scotland were not much above it. On June 1, 1922, all the coalfields were at or very near the minimum, except Yorkshire, Notts and Derbyshire, Warwickshire, Cannock Chase and Leicestershire. In these districts wages were still 40-50 per cent. above 1914. But both the minimum of 20 per cent. and this 40-50 per cent. refer to the nominal advance on 1914; they are rates and not earnings, and we have by this time made clear the great differences which may exist between their respective move-

¹ During the first three quarters of 1920, profits, exclusive of royalties, amounted to £35.2 millions: in the last quarter of 1920 there was a loss of £1.1 millions, and in the first quarter of 1921 the loss was no less than £16.6 millions.

² The 1921 settlement is discussed in Chapter VI, Section II D below.

ments. We have said, in the previous section, that it was probable that the extra increase shown by earnings in 1918 as compared with 1914 had been at least maintained, though a further increase was not very likely on *a priori* grounds. No figures of earnings had been available since November, 1918, until, on June 14, 1922, the Mining Association issued the following statement to the press. "The following figures are taken from returns furnished by over 95 per cent. of the total number of collieries. During April last the average earnings per shift per person (men and boys) amounted to 10s. 6½d. The aggregate wages bill at the collieries was £7,750,380, of which £5,682,400 represented 'standard wages.' By a simple sum we get a figure of 7s. 8½d. representing the 'per shift' equivalent of 'standard wages.' Now the actual wage per shift in June, 1914, was 6s. 5½d., which is less than this year's standard by 1s. 3d. To the higher figure must be added 20 per cent. to bring it up to the minimum. Expressing it by percentages :—

Wage per shift	June, 1914—100 (6/5½)
Standard Wage per shift	April, 1922—119·14 (7/8½)
Add 20 per cent. of 119·14, i.e.		23·83—142·97 ('minimum').

It thus appears that when wages are reduced to the minimum, provided for by the agreement,¹ they are in effect 42·97 per cent. above the 1914 level, and not 20 per cent." In other words earnings have increased more rapidly than the formal changes in rates, in the same way that they did before and during the war. We have shown the extra increase gained by certain grades in different coalfields between 1914 and 1918, and we said that this was probably at least maintained until the end of 1920. But it would have been imagined that the resumption of private control, combined with the great depression of trade, would have resulted in the paring down of extra allowances, and so on. The extra increase gained has been of a more permanent nature than I expected, and it appears

¹ I.e. the agreement of July, 1921 See Chapter VI, Section II D below.

that there must have been considerable changes during 1919 and 1920. In particular, recent returns of output per person employed show a great increase, and in some districts the hewers appear to be producing almost as much in seven hours as they did in eight. Since piece-work rates were, of course, increased proportionately, this would greatly affect earnings. But throughout, the extra increase has varied enormously not only between different grades, but also between different districts. From 1914-1918 the average earnings of all employed showed an extra increase of 1s. 5d. in South Wales, but of 1d. only in Northumberland. It would certainly not be true to suppose that there has been a uniform extra increase of 19 per cent. on the wages of all grades since 1914. The variation is almost certainly enormous. Until the Mining Association publish their returns in detail, we cannot calculate the average wages in any district, or for any grade, with any reasonable degree of accuracy. We have already clearly stated that all figures for any date subsequent to November, 1918, are based solely on changes in rates. We cannot readily calculate the extra percentage increase which took place between 1914 and 1918: it was clearly very considerable, but it can hardly have been as great as 19 per cent. Under the circumstances we cannot venture to give any detailed figures for the present time. It is clear that the decrease in wages in all districts by June 1, 1922,¹ was very great indeed compared with the level eighteen months before, and if Yorkshire and the East Midland group of districts are excluded, it is even greater still. Whether wages are 20 per cent. or 40 per cent. above 1914 in those districts which are on the minimum, it is clear that real wages were far lower than before the war, for the cost of living was still 80 per cent. higher. There, for the present, we must leave the problem, until detailed statistics of earnings become available.

¹ The nominal reductions in the percentage on the standard since October, 1921, when the subsidy period ended, are shown for the principal districts in Appendix IV, Note VII.

CHAPTER V

I. THE 1912 MINIMUM WAGE ACT

A REALLY thorough and detailed study of the effects produced by the Minimum Wage Act would need a whole book to contain it. The history of the events which led to the passing of the Act, has been clearly and accurately described by Mr. H. S. Jevons in Chapter XIX of his book, *The British Coal Trade*. But as to its immediate and permanent effects in different districts, on the one hand sufficient time had barely elapsed by 1914, when he wrote, to enable any one to pass a comprehensive and yet detailed judgment, and on the other hand much more information is now to hand, even respecting the first two years in which the Act was in operation, than was available at the time. For example, as a result of the Sankey Commission we now have accurate statistics of earnings in 1914, whereas before the war such definite information was almost unobtainable, and it is impossible to judge of the effect of the Act without it. Here we propose merely to remind the reader of the salient points in the 1912 dispute, and the general principles and methods on which the Act worked, and then to attempt in a very general way to point out the broad effect on wages in different districts.

It will be remembered that the movement for a minimum wage had its origin in a dispute over payment for "abnormal" places at a group of pits in South Wales. An "abnormal" place may be defined as any working place where a coal-getter, through no fault or negligence of his own, is yet unable to make his normal earnings, owing to difficult natural conditions, which may be and often are quite temporary, and therefore do not call for a permanent

revision of the cutting price. We have already mentioned that the Northumberland and Durham system of "caveling," by which the hewers draw lots for the working places every quarter, was a sort of rough-and-ready method of dealing with the inequalities arising from varying natural conditions, which make some working places in a seam more profitable than others. But even in those counties, when a place was recognized as definitely abnormal, "consideration" used to be given by the management, in the form of a temporary addition to the tonnage rate. But this practice, common to all coalfields, depended solely on the sympathy and good-will of the manager or his representative; except in a very few cases there was no agreed minimum to which a man was entitled, and no machinery for determining whether or no a place was "abnormal." In South Wales a test case was fought to decide whether or no the "custom" at a pit had legal force. The Judge held that this was not the case, and the men were, therefore, without legal redress. The Eight Hours Act affected South Wales more than most districts, and managers generally were faced with a considerably increased cost of production at a time when trade was not very good. This, combined with the result of the decision as to the legal force of custom, resulted in a general paring down of the amount of consideration given, and the hewers became very dissatisfied.

This question of abnormal places was soon superseded by the more ambitious idea of general minimum wages for all workers underground. The transition is obvious, for if a man is justified in claiming that his earnings should be made up, if they are below normal owing to faulty natural conditions, he may be equally justified if his earnings are restricted through faulty management; both are equally outside his control. Hewers and other pieceworkers are often held up in their work through lack of tubs, timber or other stores, which it is the function of the management to supply at the right time and place, and in sufficient quantities. The difficulties of the management are often great, but there is much to support the idea of a minimum

wage for any man who is unable to earn through no fault of his own. But when the dispute became national, we see other principles combined with these ideas the establishment of trade union standard minimum rates for different grades in each district on the lines familiar in other industries, and also the idea of one national minimum wage for the lowest paid workers, based on the principle of the "living wage." The Miners' Federation found that the task of drawing up complete schedules for all grades in each district was too complicated a problem to be solved in the bustle of the dispute, but they put forward definite claims for all skilled pieceworkers at the face, and demanded a universal minimum of 5s. to all adults underground (and 2s. for boys).

The owners refused to grant their demands, though if the Miners' Federation had not taken charge of the dispute on a national basis, it is probable that agreement would have been reached in the Midlands and in Lancashire. Eventually, on the eve of the strike, the Government intervened, but nearly three weeks elapsed before the Minimum Wage Bill was introduced into the House, and it was six weeks before the men were back at work.

The Act, as finally passed, sanctioned the fixing of minimum rates for all grades by joint district boards appointed for the purpose, but in effect left the Boards free to fix what rates they chose. As a matter of fact, the final decision as to rates was left to the independent chairmen, except in South Derbyshire, Warwickshire and Lancashire, and they had therefore to interpret the meaning of the Act, which was really the merest skeleton, according to their individual opinions. Naturally there was considerable want of uniformity, and various anomalies ensued. Three principal differences arose. The phrase "shall have regard to the average daily rate of wages paid to the workmen" of each class, was interpreted by some chairmen to mean that the minimum was to be fixed at or near the average, and by others it was regarded as a vague general instruction to preserve the existing relative positions of the different classes. The second difference was as to whether the

Prime Minister's public statement that the demand for a universal 5s. minimum was in his opinion reasonable, was intended to be a specific, if unofficial, direction to the chairmen; some of them thought so, others refused to consider anything which was not contained in the Act. The third difference was whether the rates were to remain fixed, or whether they were to vary with the ordinary percentage changes of wages. In South Wales and some of the small districts the minimum was fixed as a standard rate, to which the current percentage was to be applied, but elsewhere they were regarded as fixed, so to speak, for all time. In the former case it is clear that the idea of a trade union standard rate was dominant, in the latter the principle of a reasonable living wage. But there was a strike in South Yorkshire on this point in 1914, which resulted in the addition of the ordinary percentage increase, since the date when the original minimum rates were fixed. Provision was subsequently made for the minimum to vary automatically with general rates of wages in all districts except Scotland.

The following table shows in Column I the final demands made by the Miners' Federation, in Column II the minimum rates as originally fixed in 1912, in Column III the minimum rates in force during June, 1914, and in Column IV the average earnings according to Mr. Finlay Gibson's returns. A comparison of the first two columns will show to what extent the miners secured their demands, and a comparison of the last two columns will give some idea as to the real significance of the minimum rates in different districts. Where the minimum is not far below the average, it was obviously of considerable importance, but where there is a wide gap between the two, the Act evidently had little direct effect on wages, though it must of course be realized that the range of hewers' earnings is in all districts very much greater than that of the labourers' day rates. Figures are shown for piecework coal-getters and unskilled labour only, since this may be considered a sufficient indication, and the difficulty of classification is avoided.

DISTRICT.	Col. I.	Col. II.	Col. III.	Col. IV.
	Miners' Demands.	Original Minimum.	Minimum in 1914.	Earnings in 1914.
<i>Northumberland :</i>				
Coal-getters. . . .	6/- to 7/2	5/6	5/6	8/5
Unskilled	5/-	4/9	4/9	5/4½
<i>Durham :</i>				
Coal-getters. . . .	6/1¼	5/6 to 5/10	5/6 to 5/10	8/3
Unskilled	5/-	4/9	4/9	5/1
<i>Cumberland :</i>				
Coal-getters. . . .	6/6	6/-	6/8	8/2
Unskilled	5/-	4/7	5/2	5/8
<i>Lancashire :</i>				
Coal-getters. . . .	7/-	6/6	7/1½	8/7
Unskilled	5/-	5/- to 5/3	5/6 to 5/9	5/10
<i>North Wales :</i>				
Coal-getters. . . .	—	6/-	6/7	8/-
Unskilled	5/-	4/9 to 5/-	5/3 to 5/6	5/5½
<i>North Staffs :</i>				
Coal-getters. . . .	—	6/6 to 7/-	7/2 to 7/8	9/1
Unskilled	5/-	5/-	5/6	5/7
<i>South Yorks :</i>				
Coal-getters. . . .	7/6	6/9	8/-	10/3
Unskilled	5/-	5/-	5/8	6/8
<i>Cannock Chase</i>				
Coal-getters. . . .	—	6/3 to 6/6¾	6/10½ to 7/2½	8/6
Unskilled	5/-	4/9	5/3	5/7
<i>Warwickshire :</i>				
Coal getters. . . .	—	7/-	7/8	10/1
Unskilled	5/-	4/6	4/11	6/2
<i>Leicestershire :</i>				
Coal-getters. . . .	—	6/2	6/10	7/0½
Unskilled	5/-	5/-	5/5	5/10
<i>Somersetshire :</i>				
Coal-getters. . . .	—	4/9	5/2½	5/9
Unskilled	—	4/-	4/4	4/4½
<i>South Wales :</i>				
Coal-getters. . . .	7/1½ to 7/6	6/10½	7/6	9/4
Unskilled	5/-	4/9	5/4	5/9
<i>Scotland :</i>				
Coal-getters. . . .	6/-	5/10	5/10	8/3
Unskilled	5/-	4/9	4/9	6/6

Comparing Columns I and II, it is clear that the minimum rates for piecework coal-getters, as eventually fixed, fell considerably short of the miners' demands in almost all districts. But in Lancashire, North Staffs, South Yorks and Leicestershire the unskilled men got 5s., and in the majority of the other districts the rates fixed were only 3d. less, though it must be realized that this means a difference of nearly 1s. 6d. on a weekly income of 25s. to 30s.

Comparing Columns III and IV, it is clear that the minimum wage as regards piecework coal-getters probably did not greatly affect average earnings in any district except Leicestershire, Somersetshire, and as we shall see later South Wales. But this does not mean that the Act brought no redress to the individual miner in a really "abnormal" place under the Act. He was sure in most districts that he would take home at least 35s. at the end of a week's work, and while this was a good deal less than he would reckon to earn under normal circumstances, it was at least enough to feed his family. The Act did not give the hewers a trade union standard rate, which was sufficiently high to affect average earnings, but it did bring some redress to the hard cases.

While, as we have already said, the range of unskilled rates is small, relatively to the range of hewers' earnings, it is clear that in all districts except South Yorks (though there the range of rates between different pits is greater than in most other districts), Warwickshire and Scotland, the Act did fix minimum rates which were not far removed from the average for the district. The minimum must evidently have been instrumental in raising the rates of a considerable number of men, particularly in Lancashire, North Wales, North Staffs and Somersetshire, for if the average is only a little above the minimum, it is obvious that a very large proportion must be actually on the minimum. In South Wales there is a difference of 5d., but the range of rates in that coalfield due to its rapid expansion was considerable. Some interesting figures were submitted by Mr. Vernon Hartshorn to the Sankey Commission, based

on the owners' returns made at the time when the rates were fixed. From this it appears that—

out of 18,412 hauliers in February, 1912, there were	13,753
8,145 timberers " " "	2,603
3,535 rippers " " "	721
9,081 timberers' and rippers' assistants	3,534
12,002 labourers in February, 1912, "	10,957
below the minimum.	

All those below the minimum were of course raised to it. From the same returns it appears that no less than 21,792 piecework coal-getters, out of a total of 63,223, earned less than the minimum in February, 1912. The average earnings of the 63,000 were only 8s. 1d. at that date, which corresponds to 8s. 10d. in June, 1914, whereas Mr. Finlay Gibson's returns show an average of 9s. 4d. Even with a minimum of 6s. 10½d. as against average earnings of 8s. 1d.¹ in 1912, it is clear that the Act raised the average for hewers considerably. But it is also clear that the unskilled grades were still more generally affected. The South Wales miners were the originators of the demand for a minimum, and they probably gained more than almost any other district. Perhaps the day-wage workers in North Staffordshire gained as much, for there the independent chairman fixed the minimum at the average as ascertained from the owners' books, and he further applied the 5s. limit, though the average for labourers was at least 6d. below that figure.

It will be observed that certain districts have been omitted from the above table. In South Staffs the minimum was fixed at the agreed basis wages, and merely therefore gave legal force to the existing *status quo*. Separate rates were fixed for Nottinghamshire and Derbyshire, but we have no separate figures of earnings. Existing agreed "make-up" rates for coal-getters in both counties were higher than the minimum, which was therefore inoperative, but the Act

¹ Even though similar figures for 1912 are not available for other coal-fields, there is no reason to suppose that in other districts where the discrepancy was no larger, the Act had a similar effect on the hewers, for as we have said, the range of wages in South Wales is exceptionally great.

did probably raise the rates of a number of unskilled workers. In the Forest the standard rates and percentage were taken as the minimum, and again therefore the Act produced no effect. It may be noted that the unions in both Somersetshire and the Forest refused to support the demands of the Miners' Federation, fearing that the proposed 5s. minimum would result in the closing down of many pits.

By June, 1914, the minimum rates had become subject to the ordinary percentage variations of wages in all districts except Northumberland, Durham and Scotland. It must be remembered that though the rates fixed for the first two of these coalfields are relatively very low, all married men get free houses or an allowance in lieu. During the war, they both fell into line and the ordinary percentage variations were added. In all districts except Scotland, the uniform advances given under Government control were added to the minimum rates. But in Scotland the Act has virtually never been of any account. The following extract from the proceedings of a Conciliation Board meeting held in June, 1913, shows the position at that date, and the point of view of the Scottish owners.

SIR A. NIMMO (*Owners*) (*speaking on increased cost of production due to recent legislation*): "There was first of all the Minimum Wage Act, with which you yourself were concerned."

INDEPENDENT CHAIRMAN, SHERIFF MACKENZIE: "And which, I fancy, is having very little effect at present."

SIR A. NIMMO: "I was going to deal with that. It is quite true that at present the Individual Minimum Wage Act is more or less a dead letter."

MR. SMILLIE (*men*): "And you are claiming on it!"

SIR A. NIMMO: "I am to claim in this way. The Individual Minimum Wage Act will become a factor in the situation over every cycle of trade."

But the ordinary cycles of trade were completely upset by the outbreak of the war, and the ensuing rise in prices and wages. The minimum has never been subjected to the percentage variations, as it has been in most other coalfields, largely it would seem because the unions have never pressed for it. Their policy, actuated probably by disgust at the outcome of the first negotiations in 1912, has been to main-

tain the existing standard rates, and to secure redress in hard cases by the strength of their organisation, rather than by means of the law. As a result it is not untrue to say that Scotland, alone among the coalfields of Great Britain, has not yet secured an effective legal minimum wage.

In conclusion it may be said that the passage of time and the greater amount of information now available, does on the whole support Mr. H. S. Jevons' opinion, written in 1914, that the Act

"has proved a great benefit to the miners without putting a heavy burden on the mining industry. The two outstanding benefits are :—

"1. That it has distinctly increased the wages of the unskilled underground day-wage men ; and

"2. That it has secured to hewers a minimum day-wage, when prevented by causes over which they have no control from earning the minimum by piecework."

But, as we have seen, the effect has varied enormously in different coalfields ; South Wales may reckon that the struggle was well worth while,¹ but many districts, and those some of the more important, suffered a six weeks' strike for what was in reality next to nothing, and a large body of miners felt that they had been "tricked" by the Government—a matter which was extremely serious, since, owing to the war, the Government were shortly to become their employers.

II. CHANGES IN HOURS, 1888-1922

In this section we propose to make only three inquiries :—

(a) What changes took place in the average length of the shift in different districts from 1888 up to the passing of the Eight Hours Act in 1908 ?

¹ Particularly at the present moment of severe depression, for the legal minimum is an agreement which the employers cannot lay aside by virtue of their strong strategical position, though there have been some complaints that men have been dismissed for asserting their right to the minimum.

(b) What was the effect of the Eight Hours Act on the different grades in various coalfields ?

(c) What was the effect of the Seven Hours Act of 1919 ?

Beginning with (a) it must be realized that the "length of a shift" is a phrase which requires careful definition. It is usually defined as "X hours bank to bank,"¹ but this, in its turn, may have various meanings. Often, especially in old records, the length of the shift is reckoned by the number of hours during which coal is wound, i.e. the length of the shift is from the time when the last man reaches the bottom, until the time when the first man is ready to return to the top. "Bank to bank" is, however, the more usual method of calculation, but unfortunately this is reckoned in different ways in different coalfields. It is obvious that since the winding of the men up and down takes an appreciable time, it is necessary to ascertain the time which the average man of a shift spends underground. Consequently it is necessary to assume that the men return in the same order in which they went down, i.e. that Smith, who went down in the first cage load of men, returns in the first cage load also. It is therefore obvious that the true average hours bank to bank must be measured from the first man down to the first man up, or from the middle or last man down to the middle or last man up. In other words, in reckoning actual hours bank to bank, one winding time must be added to the hours during which only coal is raised. But in some districts it is usual to exclude both winding times, in which case the measurement is no longer from bank to bank, but the average length of time during which coal is daily raised ; and in other districts both winding times are included, which is a measurement of nothing in particular. But the confusion does not end there, for while, as we have said, one of these three methods of calculation is quite genuinely the "custom" of any particular district, both employers and workmen are apt to select that method, which best supports the object which they have in view at the moment. For when it is realized that at some pits the winding time "recognized" by the

¹ The ground round the top of the shaft is termed the "bank."

mining inspectors under the Coal Mines Regulation Acts is as much as sixty to ninety minutes each way, ranging down as low as ten to fifteen minutes ¹ it becomes obvious that the different methods will give very different results.

Turning now to the available sources of statistical information, the same return made in 1890, which we have already detailed in converting the 1886 Wage Census figures of weekly earnings into earnings per shift, also gives the "average hours bank to bank" in each coalfield for three groups of underground workers—the actual coal-getters, those engaged in the transit of coal underground, and thirdly, all others underground. Unfortunately there is no exact definition given of the phrase "bank to bank." In addition to that return, there is a variety of sporadic information to be found, relating approximately to that date, in the evidence given before the Royal Commission on Labour, and in the reports of Conciliation Board proceedings. But for the most part this also lacks the essential definition. The 1886 Wage Census unfortunately gives only the hours of labour in a full normal week, and in many cases a wide range of figures without any average. These figures also lack definition, and may be considered as useless for our purpose.

When the Government Committee, appointed to inquire into the economic effects of the proposed legal eight-hour day for miners, began its task in 1907, it was found that no general survey of hours had been made since that of 1890. The Committee accordingly conducted a special inquiry, but with what seems to the statistician little short of criminal negligence, they, or the Board of Trade officials who actually conducted the matter, failed to insert any definition of what they wanted, when they asked for "average hours bank to bank." As a result, some districts adopted one method, and some another. During the course of the

¹ The average for the United Kingdom was returned as thirty-nine minutes at the time of the Sankey Commission. Under the Coal Mines Regulation Acts, maximum winding times have to be "approved" by the Government Inspectors, and the records are kept. There is no reason to suppose that the actual time is appreciably less than these maximum allowances.

evidence the Committee discovered that some districts in South Wales excluded both winding times, while in the West of Scotland both were included. The Committee cheerfully decided that the one balanced the other, and maintained that the figure of the average hours of all workers underground, which was the vital one, from their point of view, was not therefore in error. The effect on such an average would not certainly have been very great, but the Committee did not make any effort to verify the returns as a whole, and indeed in this and other respects the figures were subjected to the most damaging criticism by various witnesses, including in particular such an independent person as one of the Government Inspectors.

On these grounds alone, it is therefore obvious that a comparison of the figures for 1890 with the returns for the Eight Hour Day Committee relating to the end of 1906, is unlikely to give any very reliable results. In addition, the later returns were classified for hewers separately, and then all underground, and according to the mining inspectorate divisions, whereas the former are shown in the three groups named above, and for each coalfield separately. The inspectorate divisions are largely arbitrary—thus Northumberland is grouped with Cumberland, though the length of the shift worked by nearly all grades is widely different. Separate figures for these coalfields cannot therefore be given for 1906, and as we have already said the returns for South Wales and West Scotland are known not to refer to a true shift bank to bank, though it is possible to estimate a figure for Lanarkshire from other available information. For the moment let us assume that the 1890 return was correctly calculated. The table (overleaf) is an attempt to put the two returns into comparable form, so far as this is possible.

It must also be remarked that, while the installation of modern machinery would tend to decrease the length of the winding-time, the increase in the numbers employed, which was not by any means entirely due to the establishment of new pits, would tend to increase it, for the existing pits would not replace their winding machinery until it was

	Hewers. ¹		All Underground.	
	1890.	1906.	1890.	1906.
	hrs. mins.	hrs. mins.	hrs. mins.	hrs. mins.
Durham	7 12	6 49	8 18	8 17
N. and E. Lancs. . . .	9 15	9 10	9 15	9 32
West. Lancs.	9 18	9 39	9 30	9 43
North Wales	8 54	9 6	9 0	9 22
Yorkshire	8 48	8 29	8 48	8 42
Staffordshire	8 54	9 6	8 54	9 17
Rest of Midlands . . .	9 24	9 18	9 24	9 26
Somersetshire and the Forest	8 30	8 32	9 5	8 44
Lanarkshire	9 18	8 34	9 24	8 57

¹ The returns asked that all workers engaged in actually getting the coal at the face as distinct from transit workers should be included under this heading.

worn out, or until it could no longer cope with an increased output. These two factors may perhaps be supposed to neutralize each other. Bearing these points in mind, the following observations may be made on the above table. It may be taken for granted that there has been no increase in hours during this period. During 1890 the Durham hewers secured an agreement that the true bank to bank hours should not exceed seven ; the reduction shown in the table might represent the effect of this agreement, if it were not that Columns III and IV are almost identical. From other evidence, however, it may at any rate be stated that hours did not alter appreciably after that agreement. The figures for Lanarkshire, showing a general decrease, are also probably fairly accurate since the hours during which coal was raised were reduced to a uniform eight per shift in 1900 ; before that date they had varied from eight to nine. The apparent increase in hours in North Wales and Staffordshire is almost certainly due to the exclusion of both winding-times in the 1890 returns. In Yorkshire and the Midlands the hewers had apparently secured a small decrease, but the effect on the average of all underground is hardly as

much as might be expected. The decrease in the average of all in Somersetshire and the Forest is probably due to a decrease in the hours of the transit hands, who used to have to stay very long hours owing to the primitive methods used, and the lack of proper equipment. The figures for Lancashire are very puzzling, but while there was certainly an enormous variation between different pits, there had not been any definite movement towards reduction.

In regard to the districts for which no statistics of any value can be given, we may confidently assert that there was no change in Northumberland during the period. Similarly in Cumberland, eight hours was the recognized maximum time for winding coal at the end of the 'eighties, though a few pits did not come into line until 1890-91. In South Wales the usual practice was to work four long days and two short days each week; on the former, coal was usually wound for nine and one-half hours, and on the latter about seven hours. There was not in all probability any decrease in hours during the period.

In conclusion, therefore, it must be understood that reliable statistics are not available, but apart from the certain facts of some decrease in the case of the Durham hewers in 1890, and of all grades in Lanarkshire in 1900, on educated guesswork it may be said that there was little or no change in the hours of work from 1888-1908, though the hewers in certain districts in the Midlands, and the transit hands in Somersetshire and the Forest of Dean, may have gained a small decrease.

Turning now to the effect of the Eight Hours Act; the Committee of Inquiry had assumed that a true eight hours bank to bank was under consideration, i.e. that the eight hours would include one winding-time. But the Act as eventually passed excluded both winding-times; it really limited the hours of coal-drawing. The Eight Hours Committee never troubled to obtain statistics as to average winding-times; in their report they reckon the average as thirty minutes each way. A complete official return was however put before the Sankey Commission, and the average then was found to be thirty-nine minutes each way. It is

possible that the increase in numbers which resulted from the passing of the Eight Hours Act, may have raised the winding-time, but the Sankey Commission concluded that under the Eight Hours Act the true average length of the shift bank to bank was eight hours thirty-nine minutes. This figure may therefore be compared with Columns II and IV in the Table above. The results of the Act in Northumberland and Durham and its effect on the number of shifts worked are discussed in Appendix V. The Act apparently made very little difference to the hewers in Yorkshire, Somersetshire, the Forest and Lanarkshire, but in North Wales, Staffordshire, and the Midlands, they gained considerably. The decrease in the average hours of all underground was imperceptible in Yorkshire, Somersetshire or the Forest, little in Lanarkshire, but very marked everywhere else. The two districts most affected were Lancashire, particularly the western half, and South Wales. All grades in West Lancashire gained to the extent of at least one hour, and in South Wales on the four long days a week, all grades must have gained very nearly one hour and a half. Finally it is clear that in all districts the other grades benefited more than the hewers.

From the point of view of the industry as a whole, the average hours throughout the United Kingdom in 1906 were found to be as follows :—

Hewers	8 hours 36 minutes
All others underground	9 „ 28 „
All underground	9 „ 3 „

The Act therefore did not apparently affect the total man-hours spent in actual coal-getting, but it is obvious that if the other grades underground did not increase their rate of working, an increased number of men was required to maintain the same rate of production. The result of the Act, therefore, was broadly speaking to shorten the average hours of all grades other than hewers by about fifty minutes, in consequence of which the proportion of oncost or “ non-productive ” workers was increased, and therefore the cost of production increased also. We have no figures sufficiently

accurate to determine the question whether the hewers, who did benefit by the Act, were able to produce as much in the shorter hours by an increased rate of working. In Northumberland and Durham when the short hours were introduced, the rate of striking when the hewer was undercutting the seam, did almost certainly increase considerably. But as we have seen, the hewers in those counties are specialists who confine themselves to the work of actually getting down and filling the coal, and owing to the peculiar geological structure of the coal in that field, they spend a far greater proportion of their time in undercutting than do the hewers in South Wales, one of the two coalfields most affected by the Act. For there the coal breaks away much more easily and the hewers relatively speaking merely have to pull it over, while they have to do all the subsidiary work at the face themselves, and that work cannot be hurried without risk of danger. The same holds true in Lancashire as regards subsidiary work, while more and more of the undercutting has been handed over to the "iron man." The time spent in taking the meal in the middle of the shift was however shortened. Custom varied between different districts ; in some the pit actually stopped winding, but in others the hewers took their meal when they chose, and the other grades when they could. On the whole, while production probably did drop somewhat for two or three years after the Act owing to the general dislocation of customary methods of working, there was no permanent decrease, and the predominance of demand from 1910 onwards enabled the industry to pass on to the consumer the increased cost of production.

In 1919 the Sankey Commission recommended that the word "seven" be substituted for the word "eight" in the 1908 Eight Hours Act, and this was subsequently carried out. Both winding-times are still therefore excluded, and the nominal Seven Hours Act in reality instituted a shift of seven hours thirty-nine minutes, in place of the eight hours thirty-nine minutes under the Eight Hours Act. As we have seen, the 1908 Act affected different grades in the same and different districts in widely varying degrees.

But it did establish uniformity, and all men underground were working the same number of hours except the hewers in Northumberland and Durham. The Act of 1919 therefore reduced the length of the shift by the uniform amount of one hour, except in the case of the hewers in those two coalfields. At some pits, especially in Northumberland, the hewers gained slightly, but in general the Act made little difference. If however the word "six" is substituted for the word "seven" in the Act of 1919, which the Sankey Commission proposed should take place in January, 1923, the hewers in Northumberland and Durham would be affected to the same extent as all the other underground workers in the industry.

CHAPTER VI

WAGE REGULATION IN THE FUTURE

I. THE DATA OF THE PROBLEM

ON the evidence afforded by the official Census of Production taken in 1907, it was estimated that the capital invested in the coal-mining industry amounted to £128,000,000. Dr. Stamp, the well-known statistician, in his evidence before the Sankey Commission, stated that, having heard eminent owners assert that the capital invested was ten shillings per ton on the basis of the production in 1913, he had examined a number of balance-sheets with a view to checking the accuracy of this generalization, and had found very close corroboration. He therefore estimated that the total capital invested was about £135,000,000 in pre-war years—no great discrepancy in comparison with the estimate made from the Census of Production. Relatively, therefore, the capital invested in coal-mining is small: for example, the nominal capital of the railway companies of the United Kingdom is about £1,000,000,000, though the total value of the product is much the same.

Another peculiarity of coal-mining is that the cost of raw materials is, relatively speaking, negligible, whereas no less than 57 per cent.¹ of the total gross product of all the industries in the United Kingdom has to be deducted on that account.

Labour is therefore the biggest factor in the cost of production. Professor Louis, of Newcastle, estimated that the Wage Bill in 1913 accounted for $62\frac{1}{2}$ per cent.² of the pit-head value of the coal produced. Lord Joicey on the basis of the Census of Production put it at 67 per cent.² in 1907. Dr. Simpson made it 66 per cent.² for the period 1866-96.

¹ Estimate from Census of Production.

² All these figures were quoted before the Sankey Commission.

With all the immense changes which the industry has undergone during the last fifty years, the cost of labour has apparently borne a constant relation to the value produced, and it is safe to put it at about two-thirds.

The corollary to the relatively small amount of capital invested is that a small increase in price means a very large increase in profits. Under pre-war conditions, in the case of the railways, over one-third of the total receipts must go to pay even 4 per cent. on the capital invested : in the case of coal, one-tenth will pay a much higher rate of interest, that is in pre-war years about 1s. per ton. Thus to double railway dividends it is necessary to increase the receipts by one-third : to double coal dividends it is only necessary to raise the price 1s. per ton.

It is the peculiar economic structure of the industry which necessitates a close correlation between wages and prices. If prices fall, the coal-owner cannot substantially reduce his cost of production without reducing wages, nor, on the other hand, if prices rise, can he resist the men's demand for a share in the profits. As we have seen above, wages have, in fact, been formally regulated almost solely by the selling price of coal, either directly, as under a sliding scale, or indirectly, by joint negotiation conducted on well-established principles. The ordinary factors of labour supply and demand, as affecting wages, are quite subordinated to the controlling influence of price movements : the price of labour is not fixed by the condition of the labour market, but by the condition of the market for the product. Yet, as we have seen, those larger and less definite economic forces do operate to a considerable extent in the long run, through the hidden alterations of the standard rates to which the formal percentages are applied, alterations which are directly influenced by the bargaining power of labour. There is, however, much friction in this process, and the economic forces do not act directly, but often only through their subconscious effect on the minds of the individuals who are negotiating wage rates by methods of argument and counter-argument. The ordinary theory of wages needs considerable modification before it can be applied to the coal industry as a short period

proposition, as indeed it does in the case of most industries under modern conditions of collective bargaining.

Reverting to the financial organization of the industry ¹ this £135,000,000 of capital was owned in 1913 by some 1,500 commercial enterprises, though over 400 of these were quite small undertakings, producing less than 2,000 tons each per annum. Only about 50 per cent. of these 1,500 undertakings published balance-sheets, and therefore we may conclude that a great number were purely "family" concerns, though the most important were usually in the hands of joint-stock companies. Hence it is not surprising to find that the whole capital was covered by less than 94,000 holdings,² and if companies, which engaged in allied industries as well as coal-mining, are excluded, this number is reduced to 37,000. The average unit of investment was therefore fairly large, and this has exercised a considerable effect, both directly and psychologically, on the aspirations and policies of the workers employed in the industry. The small "middle-class" investor does not put his savings into the business of coal-mining.

As not all the undertakings published balance-sheets, it is not easy to obtain reliable statistics as to profits. Indeed, if this account had been written in 1913, little could have been said, but the Sankey Commission has since revealed a good deal of information. The average total profit for the five years ending with 1913, after deducting £6,000,000 for royalties, was £13,000,000, or 11½d. per ton of coal produced. The average for the two good years 1912 and 1913 was £18,600,000, or 1s. 4½d. per ton. From these figures of total profits, it is necessary to make some deduction for depreciation, since the capital which is sunk in pit shafts, and in the initial development up to the time of winning coal, is capital that is ultimately lost when the mine is worked out. Dr. Stamp considers that an allowance of £1,000,000 to £2,000,000 must be made on this account. He has

¹ Most of the information on this subject has been taken from the evidence given before the Sankey Commission, particularly that by Sir Arthur Lowes Dickinson, Financial Adviser to the Coal Controller.

² The number of individual investors would, of course, be smaller still.

estimated, with a fair degree of accuracy, the total profits, including royalties, for a long period of years, and the figures are given in Appendix VI. The variation from year to year is very considerable. In the period 1889-93 the average per ton was 1/3.78: in the next four years it was only 10.68 pence: in 1907 it was 1/9.86: two years later it was only 1/1.55. But it is a much more difficult thing to estimate the percentage return to the investor. Dr. Stamp considered that over a long period before the war, the average return was 9 to 10 per cent.—in other words, just about the normal return to industry in general—and, as he pointed out to the Sankey Commission, coal-mining, owing to its special risks as an investment, might be expected to yield 2 to 3 per cent. more than the average. While exact statistics cannot be given, it may be considered as certain that relatively to industry in general there was no abnormal return on the *total* capital invested over a long period of years before the war, at any rate if some allowance be made for exceptional risk, whilst there is every probability that relatively it was distinctly on the low side.

But the position is very different when we consider the profits of *individual undertakings*. That there are very great variations in the cost of production between different pits is a commonplace, and therefore a considerable variation in profits would naturally follow. But few people probably realized how great the differences were, until the Sankey Commission probed into the matter. It is to be regretted that we have no figures for normal pre-war times, but the following is Sir Arthur Lowes Dickinson's report of an inquiry conducted by the Coal Mines Department with reference to November and December, 1917, and while the abnormal conditions of the war period may have resulted in a somewhat unusual position, the general features must be the same.

"Of 46 per cent. of the main undertakings producing three-fourths of the total tonnage of those undertakings, 31 per cent. in numbers produced 62 per cent. of the total output at a profit of 2s. 3d. per ton; the other 15 per cent. produced only 13 per cent. of the output, but at a loss of 2s. per ton. The profits were

found to run at least as high as 6s. a ton in many cases, and losses quite as much in many others.¹ It is perfectly clear that the price of coal that is a fortune for some collieries spells bankruptcy for a number of others."

Further light is given on the general situation by the following extract from Mr. W. Thorneycroft's² evidence before the Sankey Commission :—

" It is out of the periods of high prices that the poor colliery is able to carry on. Another point I should like to make is that these poor collieries are not always the same collieries. The physical conditions underground change with extreme rapidity. What may be a good colliery one year, may be a bad one within a year or two, and the reverse equally takes place. The owner of the bad colliery hangs on until the next boom if he can, but if the boom is too long delayed, the colliery has to close, but the number of these collieries that have to close is not very great. It is a very small affair in the last twenty years."

Now the conditions which create this great variation in profits between different pits, must be almost entirely due to differences in natural conditions. The variations resulting from different degrees of efficiency in management, whether on the administrative or on the commercial side, can only amount to a very few pence per ton, even under the most wildly imaginative conditions, and the variation is not a matter of pence, but of many shillings. It is certainly true, as Mr. Thorneycroft said, that very few collieries go bankrupt. It follows that the price cannot ever have gone below the cost of production in the worst collieries for any length of time, and if in times of good trade the worst collieries have been able to make sufficient profit to carry them on over the periods of depression, the good collieries must make in those good times profits which can be nothing short of fabulous. Clearly the price has to be at a level which, on the average of a number of years, is slightly higher than the highest cost of production at any pit. A large number of undertakings reap a surplus, which is due almost entirely to natural conditions, and not superior administration, or any factors under man's

¹ The extremes ran up to 12s. either way.

² A mining engineer and colliery manager in Scotland.

control. The production of a pit is limited by factors such as the size of the shaft, and the good pit cannot increase its output to such an extent that it is able to drive the poor pits out of the market, by satisfying the demand at a slightly lower price, though obtaining greater profits because of the larger output. Similarly there is no inducement for the prosperous company to buy up the poorer company's pits, as happens in most manufacturing industries, for better management cannot make the poor pit much better, since the natural conditions, which make it poor, are outside man's control. Nor again, is there any inducement for new pits to be sunk,¹ because there is no guarantee that they will be specially remunerative, which is shown by the fact that the average return is certainly not abnormal. Coal-mining as a field for the investor is peculiar. It may be likened to the barrister's profession. There are a few big prizes which tempt many men to compete for them, though relatively to other occupations the average earnings of all are not economically attractive. The class of people who invest their money in coalmines are induced to do so by the possibility of great profits, and the existence of these prizes has kept down the average return. The corollary seems obvious—take away the few prizes, and the average return will have to be raised, for the risk must be balanced somehow or the other. Morally, the surplus due to natural differential advantages may be considered as the property of the community, but if the community chooses to remunerate the colliery investor in this peculiar way, it may be wise to do so, for the ordinary methods may be more costly, and in any case the existing arrangement is, relative to industry in general, not over-dear from the point of view of finance.

Yet the present system of private ownership may in reality be more costly than it appears. Of two men receiving the same wages, one may be, in the opinion of their

¹ The ultimate loss of all the capital involved in sinking a pit is presumably one of the reasons why new capital is invested in improving poor pits in poor districts instead of in sinking new pits in the richer coalfields. Another is that an investor with a detailed knowledge of the conditions in one coalfield has no such knowledge of others.

employer, efficient, and the other not so ; the latter may use methods which are out of date, and unduly costly or wasteful, and if he will not change his ways, the employer may come to the conclusion that he had better be replaced by another. So it should be with the community and its various industries. If the present system in the coal trade is less efficient than it might be, and cannot, owing to its peculiarities, become more efficient, then the community may do right in deciding to replace it by another system. The Sankey Commission subjected the present system of individual ownership to a very searching inquiry. We do not propose to consider in detail the points raised by the various reports.¹ The causes of the alleged inefficiency fall into two classes—those which could conceivably be remedied under the present system of individual ownership, and those which by the nature of things involve a change of that system. Thus there is no fundamental reason why, for example, under the present system, the consumption of coal at the collieries should not be reduced, but if Mr. Justice Sankey is right when he maintains that there has been “underselling in the export trade, and overlapping in the inland trade,” the remedy for these things necessitates the abolition of the individual competitive system altogether. It is important to realize this difference. Some of the most acute minds in the country have condemned the present system, and recommended a fundamental change. Many men, however, feel that the risk of change is so great, that an effort should first be made to induce greater efficiency, just as any individual employer might caution an inefficient worker in the hope that he would improve, instead of dismissing him straight away ; for however satisfactory a new man’s credentials and appearance, it is impossible for the employer to know his worth, until he has seen him at work. Under these circumstances we may well inquire how far economic forces have stimulated the coal-owners to great efficiency in the past,

¹ Nor the evidence on which the reports were made : it is impossible for the non-technical man to criticize such evidence as, for example, that given by Sir R. Redmayne.

and what are the prospects of such stimulation in the future ? Has capital in the coal-mining industry been forced to fight hard for its reward, or have times been on the whole easily comfortable ?

To answer these questions, it is necessary to examine the movements of prices, and of the cost of production. Since 1888 there has been a general upward trend in prices, though this incoming tide has of course risen in a succession of waves. Now an increase in price, apart from monetary disturbances, may be caused by alterations either in the schedule of demand prices, or in the schedule of supply prices, or in both. By a schedule of demand prices, we mean a list of the prices which consumers are prepared to pay for a given quantity, e.g. 10s. per ton for a yearly supply of 100,000,000 tons, 12s. per ton for 90,000,000 tons, etc. : and the same as regards supply prices. But since coal-mining is subject to the law of "diminishing returns," in that it is obviously necessary to work successively poorer seams if you want to obtain a larger output, the supply curve will always tend in an upward direction, whereas, in many manufacturing industries, it is cheaper to turn out one thousand of a thing than one hundred, and the supply curve will then slope downwards. Now, if the cost of production rises, the price will be forced up, with the result that demand will fall, since the consumer is only ready to take a smaller quantity at the higher price. If therefore a rise in the cost of production had taken place since the 'eighties, though the conditions of demand had on balance remained constant, prices would have risen but the amount produced would have fallen. In reality, however, the amount produced has of course risen enormously, and therefore the demand schedule has not remained constant. But the cost of production has also undoubtedly risen : the "get" per man employed has continuously tended to decrease. Hence demand has not only increased, but it has increased sufficiently to outweigh the increased cost of supply. Prices have risen, principally because of the increase in the value of coal compared with other goods and services. Demand has been the predom-

ant factor in the equation of exchange throughout the period. At times the supply has been much in excess of the demand, but on the whole the reverse has been the case. This predominance of demand explains the apparent paradox of rapidly increasing wages combined with a fall in the productivity of labour, and it has enabled the industry to pass on to the consumer the burden of that decreased productivity. For the same reason capital has not probably borne any considerable share of the cost of the miners' demands for better conditions. Capital has been able to go quietly on its way, and though in times of depression it has felt the spurs, on the whole the journey has been made without the necessity for any extraordinary exertions.

During the Great War demand became so insistent, owing partly to the great decrease in production, that the supply side of the question became almost non-existent. There is no doubt that if capital and labour in the industry had come to a mutual agreement after the war, they could have exploited the community to almost any extent. Since the spring of 1921, the industry has been experiencing acute depression, but it is exceedingly doubtful whether, when the trade of the world revives, demand will not continue to be the predominant factor. Despite the introduction of partial substitutes, such as oil and cheap electrical power, there is every reason to forecast a steadily increasing use of coal, at any rate in the immediate future. The world may of course be able to obtain its supplies more cheaply from other nations, but while acute foreign competition is undoubtedly a very serious possibility, it is questionable whether it will be sufficiently severe to induce greater efficiency. On the whole it does not seem likely that economic forces will bring about those radical changes in the present system, which are needed to cure the existing inefficiency, in so far as the majority of the Sankey Commission are right in asserting that inefficiency exists, and in so far as it can be remedied without a fundamental change in industrial organization.

We have still to consider the possible effects of the pressure which may be brought to bear by the miners themselves

through their trade unions. They may be strong enough to enforce such demands as will necessitate greater efficiency on the side of capital. But this is doubtful, for the only method involves a radical change in the system by which wages are at present regulated. Economic principles, as we have seen, demand some relationship between wages and prices. As long as wages fall with prices, the employer obtains relief, and therefore to apply the spur, the relationship must be artificially broken. Wages must in effect be kept at a level slightly higher than "the trade will bear." The first result will be unemployment, and it is doubtful whether labour could maintain such an artificial level for the length of time necessary to produce the required effect.

On the other hand, labour may be able to dictate definite terms, and so increase the efficiency of the industry's organization directly, and not merely through the exercise of a general pressure on capital. But the remedies which labour is likely to propose do not involve merely a reform of the present system of individual ownership, but its complete supersession. The reason lies primarily in the fact that the improvements which trade unionism desires in the methods by which labour is remunerated, are virtually impossible without a much higher degree of centralization than is possible under the existing system. The variations in prosperity between different pits make the application of a district standard rate exceedingly difficult, and the differences between some coalfields and others make national rates seem impossible. Until the war, wages were paid roughly in relation to the value produced: at a good pit wages were somewhat higher than at a poor one, and in each district the general level of wages was dependent on the price obtained, relatively to the cost of production, both of which varied greatly. The trade unionist, however, maintains that equal expenditure of effort should be equally rewarded. Two men, at two different pits or in different districts, may be working equally hard, and it is not the man's fault if, owing to more difficult natural conditions, one is only able to send out half as much coal as the other.

Yet under the present system they do not get paid even approximately at the same rate, and if the union tries to establish a minimum rate for the district, it must be fixed at a figure which will not result in the closing down of the poorest mine. The unions before the war were in almost complete ignorance of the financial position of the vast majority of pits, and even if they knew that a particular pit could easily afford higher wages, they could not make demands at that pit without sacrificing the first principles of trade unionism. Under a system of individual ownership they cannot therefore really reach the surplus profits of the good pits. Similarly as between districts, wages might be good in South Wales owing to prosperity in the export trade, and very much lower in the Midlands, and *vice versa* a year or two later, but without some centralized system the industry could not be treated as a whole. Under Government control, the total profits of the industry could be lumped together, and equal advances given all over the country to meet the common need to all, resulting from the rise in the cost of living. How nearly the ideal of a uniform level of wages was achieved we have already seen. But the system of individual ownership is essentially decentralized, for as has been pointed out above, the tendencies towards unification and centralization, which have appeared in most large industries under modern conditions, do not operate in coal-mining.

In the eyes of the trade unionist, centralization of some kind is essential; first in order to abolish the variations between different pits, and so enable an effective standard rate to be established, together with a general uniformity in the level of wages throughout the country: and secondly in order that the surplus profits at exceptionally good pits, which now go mainly to capital, may be utilized to raise wages. A system of national rates for each class of labour, such as the railwaymen or the building operatives have secured, is not practicable in the case of colliery workers, for as we have said the methods of working vary too much between different districts. But the enforcement of standard rates for the principal grades within each coalfield, and

a general uniformity in the level of wages throughout all coalfields, are ideals which do not appear to conflict with the essential features of the industry, though they cannot be introduced under the present system.

II. SUGGESTED SOLUTIONS AND AN EXPERIMENT

(A) Nationalization.

It is essential for clear thinking on this subject to realize that the term "nationalization" does not by itself denote any particular scheme of industrial organization. It is the name of a genus which contains a variety of species. The same is of course true of the term "individual ownership." To-day we mean by individual ownership something very different to that which people meant in 1840: the absolute control of the individual has been greatly limited since then by Acts of Parliament, and by the power of the trade unions. Similarly nationalization may take many forms. There is no black-and-white alternative between it and individual ownership. To use a parallel from political science, we might liken the choice to that between aristocracy or democracy: it all depends upon the form each takes. As a system of ownership, nationalization of the coal industry involves three distinct things—the ownership of royalties, that is of those parts of the earth which contain coal seams, the ownership of the mines themselves, and the ownership of the distributive trade. Any one or two of these three may be "nationalized" apart from the rest. Even the coal-owners themselves on the Sankey Commission recommended the nationalization of royalties, and the taking over of the distributive trade by the municipalities. The former has almost ceased to be a contentious matter, and the latter has quietly dropped into the background for the present. Hence "nationalization" has come to refer to the nationalization of the mines only, and for the remainder of this section we use it in that sense.

The principal difference between the genus "nationaliza-

tion," and the genus "individual ownership," lies really in the matter of unification. This is the object of all schemes for nationalization, whether it is desired principally as giving cheaper production and more efficient working, or as a means to a more equal distribution and a positive increase of labour's share of the product. The miners demand nationalization, primarily because they think that unification will make it possible to remunerate labour more or less equally in all coalfields, and that it will end the present system under which the surplus profits of good pits are retained by individuals, even though they arise almost entirely from natural conditions. Many men desire unification, because they think the present system expensive and wasteful from the point of view of the community.¹ A small group of advanced thinkers view the problem as a moral one, in that they think it wrong for any man to work under a system by which the proceeds of his labour go to individual investors of capital. The motives which prompt nationalization are many and various, and in consequence the precise schemes suggested vary greatly also.

We do not propose to attempt any examination of all these schemes. It would probably surprise many people to learn that, as long ago as 1894, Sir George Elliot, himself a coal-owner, put forward a scheme for the most complete unification of the industry. But to-day it is generally acknowledged that Mr. Justice Sankey has said the last word so far. From the point of view of wages, his scheme may be said to make possible the miners' demands for standardization, not only as between different pits in each coalfield, but in the general level of wages in all coalfields. With completely centralized finance, the distribution of wages becomes an absolutely arbitrary matter, to be settled purely by mechanical arrangement. Under his scheme the surplus profits of good pits would become the property of the community, available for increasing wages or reducing the price of coal. Thus there is no doubt that it would remove the existing inequalities of wages. Whether it

¹ E.g. Sir A. Duckham and his scheme.

would, or would not, reduce the other costs of production, and so create greater net proceeds, is a matter of opinion. Whether the community or the miners would get the benefit of the surplus profits at good pits, and such greater net proceeds as might ensue, we cannot say. Nor can any one decide whether or no, especially in the long run, his scheme would not result in such a general decrease in the efficiency of the industry, that it would be impossible to maintain the average level of wages in the past. If that was the result, the miners might not be prepared to pay such a price, even if standardization of wages had been made possible. It is the doubtful character of these problems, which make many men feel that Mr. Justice Sankey may, in reality, be recommending a leap out of the frying-pan into the fire. The Miners' Federation are confident that almost any scheme cannot make things worse,¹ and they are certainly right in thinking that if all goes well, nationalization will enable them to apply trade union principles, and redress the inequalities inherent and unavoidable in this industry under any system of individual ownership.

(B) The Output Basis.

The terms which settled the dispute of November, 1920, cannot perhaps be said to have embodied any new general scheme for the regulation of wages. It will be remembered that a scale was arranged by which wages were uniformly advanced or reduced, in accordance with the variations of the total production month by month from a given total standard output. It will be remembered that the dispute arose, primarily, from the miners' demands for a share in the huge profits then being made on exports. At the same time production was still very much reduced, despite the return of more normal labour conditions, and the foreign demand for coal was practically insatiable. If home prices

¹ Before the War there was a general belief among the miners that there was much waste and inefficiency, and this belief was confirmed by the evidence given before the Sankey Commission, thus producing an added psychological effect.

had not been controlled, the necessary supplies would not have been forthcoming, for it is almost inconceivable that home industry would have been prepared to pay the price, which could be obtained by exporting to other countries. The idea of making wages dependent on total output was an endeavour to protect the community from the bad results of the maladjustment in the equation of supply and demand. We do not by this statement imply that the miners' demands were unjustified: they probably had considerable justification for their claim to a special share in the wealth which fortune was presenting to the community as the result of their labours: and as regards the rise in the cost of living in relation to wages, this, as we have said, depended on the view taken of the grounds on which the advance, which followed the first Sankey report, was given. What is important, is that this was no new problem: demand had on the average exceeded supply for twenty years before the war, and at certain times the position had been acute; the position in 1920 was merely specially acute, and it was thought that if wages were raised higher, absenteeism and slack work, already considerable, would increase, because the miner would be able to make all the money he wanted in three or four days instead of six, and therefore the total output would fall still further, and the position go from bad to worse. It was generally felt that the industry was in such a strong position as to be dangerously near holding up the community to any ransom desired. On this occasion the owners had been superseded by the Government, who were therefore at the same time the employers and in a sense the consumers. Normally the Government may be said to represent only the consumers,¹ and this dispute throws considerable light on the extent to which both owners and miners are able to take it out of the consumer, even when demand is not so insistent as it was at that time. But it must be pointed out that production does not rest entirely on the efforts expended by

¹ At any rate in theory, though the coal-owners are of course very strongly represented both directly and indirectly in both Houses of Parliament.

the miners. The men can only produce a maximum if the management is also at the maximum point of efficiency, and the amount produced must vary with trade conditions. In a way the men, by accepting this agreement, made wages dependent on factors which were largely outside their control. As a temporary measure it may have appeared reasonable, and it was certainly a method of regulating wages on a national basis, but as a permanent innovation under the normal conditions of private ownership, or even under nationalization, it was out of the question.

(C) The Pool.

The scheme for a Wages Pool, to be created by a levy on the industry, and to be used to make possible uniformity in wage changes throughout all districts, must not be regarded as a desperate idea, hatched by the Miners' Federation when it was suddenly brought face to face with the enormous reductions demanded by the owners in some coalfields as from the date of decontrol.¹ As a matter of fact, the owners and the miners had been meeting regularly during the winter of 1920-21 to discuss arrangements for a permanent reorganization of the wage system, since this was one of the terms which settled the strike of October, 1920. The miners had put forward proposals for such a wages pool, combined with a "standard" rate of wages and profits, and after these had been paid, any surplus was to be divided in agreed proportions between owners and men. It is obvious that any scheme by which wages are regulated on the aggregated profits of individual concerns must weigh heavily on the poorer owners, since they have to pay wages at a higher rate than they would do under the old system, by which prices were determined not by profits but by the average price of coal. The miners' proposals involved the aggregation of profits on a national, and not merely on a district basis, and if many of the

¹ Sir Arthur Lowes Dickinson in his evidence before the Sankey Commission, virtually recommended a pool as desirable from the point of view of the consumer.

poorer mines were not to close down, or even whole coalfields such as Somersetshire and the Forest, it was clear that there must be some sort of pool of profits, similar to that proposed for wages.

Until the middle of February, 1921, these proposals were under discussion. Then the Government suddenly announced its intention of terminating control not on August 31, as had been previously arranged, but on March 31. The owners immediately ended the previous negotiations for a reorganization of the wage system, and shortly afterwards published schedules of the wages which they were prepared to pay in the different coalfields, wages which were determined on the old principles of district percentages on the standards. As will be remembered, the men in the North Midland Coalfield were to receive an advance, although a small one, while their fellow-workers in South Wales were asked to submit to reductions in no case less than 40 per cent. on current wages, and in other districts almost as serious reductions were to be enforced. Without a fundamental change of system, it must be admitted that the owners' proposals were the only possible ones. Prices had fallen so quickly, and so greatly, in the export trade, that these enormous reductions were an absolute necessity. But the variation between different districts was more than human nature would stand without a struggle. Yet the situation was in its essence, simply a special case of a constantly recurring problem, as we have shown in Section I of this Chapter, and throughout previous Chapters. Generally speaking there were few novel factors of any importance, and solution was as impossible under the old system, as ever it had been.

The miners had been unsuccessful in their demand for nationalization. The scheme, which they had been discussing with the owners, was simply another means by which some degree of unification could be obtained. The particulars of the scheme might have been modified considerably after expert detailed investigation, and probably a good many of the objections raised would have been found incorrect. But the owners were resolute in refusing to

entertain any scheme which involved a pooling of profits : ¹ they declared, and with some truth, in our opinion, that such an idea was the direct negation of the fundamental principles of individual ownership and management, and that the scheme was merely nationalization in all but name. Consequently after the pits had been idle for some weeks, the miners dropped the scheme as a whole, and concentrated attention on the idea of a wages pool only. The amount available as wages, was to be determined on the old system, but a levy on tonnage was to make possible equality of distribution throughout all coalfields. The owners, and we must add the Government, virtually refused any investigation of the idea, and contented themselves with denouncing it as unworkable. Restoration, and not reconstruction, had become the dominant motive of the day. Various opinions were published by the Press, some in favour and others against. Until the scheme has been much more closely defined, and until it has been subjected to expert investigation, it is impossible to give an opinion of any real value. From the point of view of wages, the whole scheme, as originally outlined, certainly makes possible a greater degree of standardization and gives uniformity of changes between the different coalfields, in the same way as would be achieved under nationalization. The aggregation of profits on a national scale also enables the miners to obtain some part of the surplus profits of good pits, though not the whole, as under nationalization. But again as under nationalization, it is very doubtful whether efficiency would not be reduced. In a word, the scheme involves an excess profits tax on the good collieries : and the effect would be similar. If it were not too heavy, all might be well, but the enormous variation in profits between different pits would undoubtedly make it very heavy in some cases. If the wages pool only be considered, it is clear that it is confined solely to the problem of distribution, for which it certainly appears a reasonable solution. It is impossible

¹ The pooling of profits was involved, because the levy on tonnage produced would come out of the net proceeds, of which on the average before the war 17 per cent. went to profits, and the rest to wages.

to conjecture how it would work out in practice. On the face of it, there is no obvious difficulty or disadvantage. It does, of course, demand a degree of self-sacrifice on the part of the miners in the more profitable districts, whichever they may be at any time, but there is no reason to assume that this would not be forthcoming, even under very adverse circumstances. We consider it regrettable that the idea of a wages pool was not discussed on its merits. But as we have said, it touches only the problem of distribution, and while the coal-owners may have been right in regarding it as "the thin end of the wedge," it does not appear likely that the Miners' Federation will launch their next campaign solely on this question.

(D) The 1921 Settlement.

We refer to this as an experiment, because little more than one year has elapsed since the new scheme really came into operation, and that one year has been so abnormal that it is hardly possible as yet to judge of its merits or defects. But it is clear that it is fundamentally different from the old pre-war arrangements for regulating wages. The basic principles of the latter were, that there should be a definite relation between average selling prices and wages. This operated in a rather complex manner. When demand was in excess of supply, the owners were just as much interested in keeping down the cost of production—for anything saved was profit—as they were in times of bad trade, when they had to make every effort to lower price quotations in order to dispose of their output. In bad times the competition between different collieries was as a rule much too fierce to allow the ordinary owner to restrict his production with a view to keeping up the price. In other industries when competition becomes fierce, it is more than likely that the various employers will come to some agreement for a limitation of production. But the great differences in the cost of production between collieries prevent any such tendency, as a rule, in the coal trade. The coal-owner is always aiming at the maximum output per shift, in good times

that he may make more profit, and in bad times that the cost of production per ton may be kept down to the minimum. But the miners' outlook was quite different. When trade was good, that is when demand exceeded the supply, prices rose and wages followed, with the result that after a time the miner might feel that he would rather work less than earn more money, and he might also think that it was after all a pity to "spoil the market" by producing his maximum: if the supply were kept short, prices might remain up longer. Again, in times of bad trade the miner might reckon it preferable to work three days a week at good wages, than six days a week at lower rates. In times of good trade the cost of production did not concern him, for it merely meant an addition to profits, while in times of bad trade he was only interested in so far as a decreased cost of production might mean more employment. The restriction of output, involving higher cost of production, was, from the point of view of the miner, in times of good trade merely a choice between higher earnings and greater leisure, and in times of bad trade, there was some economic justification for it, since there are times when the world does not want coal at any price, and when therefore no reasonable lowering of prices will stimulate demand and so give more employment. In fact, under the system of regulating wages merely by prices, there was a fundamental difference between the interests of the coal-owners and those of the miners, while as we have seen the miner could not get at the surplus profits made by exceptionally fortunate concerns.

The 1921 settlement has brought fundamental changes. Wages are still to be regulated on a district, as opposed to a national, basis, but they are not to depend on variations of price, but on variations in the total profit of each district. Auditors are to furnish monthly returns for each district showing the total proceeds from the sale of coal, the cost of "standard" wages (which are the district basis rates existing on March 31, 1921, and the district percentage payable in June, 1914, including allowances to piece-workers for the reduction of hours), the costs of production other

than wages, and the cost of "standard" profits (17 per cent. of the cost of standard wages). The last three items are then to be deducted from the total proceeds, and the net balance is to be divided so that 83 per cent. goes to wages, and 17 per cent. to the owners as profits. Wages are never to fall below 20 per cent. on the "standard" wages. If there is a deficiency when wages have been reduced to the minimum, the owners forego their allowance for "standard" profits, and the deficiency is carried forward as a first charge to be met out of a surplus when it appears.

It will be seen that these arrangements are somewhat similar to some of the miners' proposals which were being discussed during the winter of 1920-21. But the essential difference is as regards the aggregation of profits. The miners of course wanted it on a national basis, but this 1921 settlement provides for a district basis according to economic conditions. Thus whereas before the percentage level of wages was the same all over the Federated Area, now nearly every coalfield is a unit in itself, though Yorkshire, Notts and Derby, Cannock Chase, Warwickshire and Leicestershire are still grouped together. Originally the owners proposed an even greater subdivision, but the miners succeeded in obtaining some modifications. In consequence of this district basis, any absolute necessity for a pooling of profits is avoided, while of course there can be no uniformity either of wage changes, or in the general level of wages. At the same time the aggregation of profits within each district as a basis for determining wages must of necessity be disadvantageous to the poorer concerns in that district. It would seem that the owners, as a body, thought that the regulation of wages according to profits, and not prices, was desirable, or at any rate that some concessions must be made to the views of the Miners' Federation. But it would also appear that the more prosperous owners have made their poorer brethren bear most of the burden, for under the district aggregation of profits the latter have to pay a higher wage than they would do if wages were based on prices, though the former do not of course retain the whole

of any exceptional profits as they did under the old system. For from what has been said in Section I of this chapter, it is clear that any given selling price yields a surplus to the more fortunate pits, which did not under the old system enter into the calculation of wages. Now, it does ; and wages no longer depend on prices which are a common factor to all, but on profits which vary greatly between different pits, and therefore all the pits, making a profit below the district average profit, suffer by having to pay at a rate, based on that average.

But, as we have said already, the fundamental change is that wages now really depend on profits and not on prices, though of course prices do largely determine profits. But the difference is that the miner is interested in making the total net proceeds of the industry in his district as large as possible. The old division of interests as regards output, between employers and men, has been removed. Further, the miner has a continual interest, equally with his employer, in reducing the costs of production apart from wages. Of every penny saved on stores, roughly three farthings goes to increase wages. Lastly, since both the good and bad collieries in each district are lumped together, the miners are getting at any rate some share in any surplus profits, due to exceptionally favourable circumstances.

It is too early yet to pass judgment on the new scheme. The conditions of labour in most coalfields to-day are deplorable, but no system of wages could remedy this completely—there simply is not enough to go round—though some form of the “pool” might have redressed the inequalities between the lot of the Yorkshire miner and his comrades elsewhere. The new scheme will obviously not satisfy the aspirations of the miners’ trade unions, because of its district basis, and because the fortunate owners will still keep the bulk of their surplus profits. These fortunate owners are naturally disinclined to forego any possible profits, while the poorer owners may kick against the large share of the burden which they are bearing, in order to satisfy in part the miners’ demands. But from the point of view of the community, it would seem that

the new scheme marks a definite advance. The exact details may be modified, and the proportions of profits and wages altered, but the general principle that wages should depend on the net proceeds of the industry, and not merely on prices, seems sound, inasmuch as it does reconcile some of the divergent interests between employers, employed, and the community, which have so complicated industrial relations in the past.

APPENDIX I

SELECTED BIBLIOGRAPHY

I. GENERAL.

A. *Government Publications.*

- 1886 Wage Census.
- 1890 Report on Days per Week and Hours per Shift worked in Coal Mines.
- 1892 Reports of Royal Commission on Labour (Mining Group together with Appendices).
- 1900 Report on Piece Rates of Wages and Sliding Scales.
- 1905 Report of Royal Commission on Coal Supplies.
- 1908 Report of Committee on the Eight Hours Day Bill.
- 1910 Report on Collective Agreements.
- 1912 Parliamentary Debates on the Minimum Wage Bill.
- 1919 Report of the Royal Commission on the Coal Mining Industry.
- Various Dates. Mines and Quarries Reports.
Labour Gazettes.
Abstracts of Labour Statistics.

B. *Books.*

- Redmayne, R. A. S., and Bulman, H. F. : *Colliery Working and Management.*
- Bulman, H. F. : *Coal Mining and the Miner*, 1920.
- Stone, Gilbert : *The British Coal Industry.*
- Jevons, H. S. : *The British Coal Trade.*
- Webb, S. & B. : *History of Trade Unionism.*
- Bowley, A. L. : *Wages in the Nineteenth Century.*
Prices and Wages 1914-1921.
- Gibson, A. Finlay : *Statistics of the Coal Mining Industry*, 1922.

II. PARTICULAR COALFIELDS.

A. *Publications.*

Webb, Sidney : History of the Durham Miners.
 Report of Arbitration Proceedings in Cumberland,
 1892, and Conciliation Board Proceedings in 1902
 and 1907.
 Report of Government Committee on Drainage
 System of Coal Mines in South Staffs, 1919.
 Dalziell : Colliers' Strike in South Wales, 1871.
 Proceedings of Joint Boards under 1912 Minimum
 Wage Act, in particular those for the following
 districts :—
 Northumberland.
 Durham.
 Nottinghamshire.
 Derbyshire.
 North Staffs.
 Cannock Chase.
 South Wales.
 Scotland.

B. In my visits to the various Trade Union Offices, I
 also had access to a large number of documents of
 all kinds—reports of Conciliation Board meetings,
 rules of Conciliation Boards and provisions of sliding
 scales, records of prices and wages at different
 dates, circulars to union members, correspondence
 with employers, etc. Most of these can, however,
 only be obtained at the local offices for each district.

APPENDIX II

 THE COMPARATIVE LEVEL OF WAGES
 IN LANARKSHIRE, FIFESHIRE AND AYRSHIRE

The following table shows the 1886 Wage Census Figures for
 the three districts, converted into shift earnings :—

	Lanarkshire.	Fifeshire.	Ayrshire.
Coal-getters :			
Piece	4/4	4/1	4/1
Day	—	—	—
Putters	3/9	3/3	3/6
Stonemen	4/3	4/2	3/7
Firemen	3/9	3/7	3/9
Labourers	2/7	2/10	2/11

It appears therefore that, when allowances are made for slightly varied classifications due to different methods of working, there was no great difference in the general level of wages between the three districts.

APPENDIX III

NOTE I. THE PROPORTION OF ALL WORKERS
UNDERGROUND COVERED BY THE 1886
WAGE CENSUS RETURNS

District,	Percentage of all employed under- ground in 1886.
Northumberland and Durham	16.3
Cumberland	23.9
Lancashire	4.4
Yorkshire (excluding Cleveland)	9.5
Notts and Derby	7.4 ¹
North Staffs	28.6
South Staffs, Warwickshire, South Derby	} 18.7
Leicestershire and North Worcester	
North Somersetshire and Forest of Dean	6.3
North Wales	10.3
South Wales and Monmouth	17.6

¹ Figure of total numbers employed underground includes South Derby, which is not therefore included in the South Staffs group.

NOTE II. MUTUAL SHARING AND THE CAVELLING
SYSTEM

We give here a few notes on these practices. The work of actually getting the coal is a continuous series of different operations. Before the coal can be "broken out," it is necessary to undercut the seam, and after the coal has been filled and taken away, there is often a good deal to do (ripping, timbering and general "tidying" up) before the place is ready for further undercutting. In a single-shift pit the hewer resumes the series of operations very much where he left off the previous day, but the case is different in a double-shift pit when the men on successive shifts do not share mutually the total proceeds of their

joint labours. For suppose the hewer on the first shift has just cleared away his coals, and finds there is, say, another hour before his mate or "marrow" relieves him. By working hard, he reckons that he might be able to make the place ready for coal-getting again in half an hour, and that would still leave half an hour in which he could start undercutting. But if he starts undercutting, his marrow, and not himself, will get the benefit of it, and consequently he slackens his efforts and merely does the tidying up. The same thing holds good at any stage of the series of operations. The above is an extreme case, but will illustrate the point. On the other hand where the men on successive shifts all share the total proceeds, there is no need for any such interruptions. One man may spend his whole time preparing the place, leaving his mates to send out the coals, and neither he nor they necessarily lose anything thereby. But mutual sharing does of course involve the necessity for mutual confidence and trust between the two or three men. If one man is less hardworking or less skilled, the others will suffer while he himself will gain. For successful working, the system depends on giving the hewers the right to choose their own marrows, and the consequence of this will be that the good workmen will get together, and so will the less efficient.¹ This may result, for instance, in one part of the face being worked much quicker than the adjoining section, and the management may thereby be faced with various technical difficulties, while if a group of poor workmen are always working together, there is little hope of their improving. The system works well in Northumberland and Durham, but it does involve a more or less universal standard of efficiency, such as would not be found to the same degree in some other coalfields.

The practice of cavelling is supported *prima facie* by principles of justice. It is argued that if one workman is in a very easy place, and makes big earnings without undue effort, while another equally skilled man is in a difficult or "abnormal" place, and unable to make as much as the other however hard he works, then it is only fair that they should change places at stated intervals. For a working place may become difficult for a time and then come all right again, and hence even with the County Average System there would be no case for altering the price list. Before the Minimum Wage Act, when a place was recognized as abnormal, and the man was known as a good worker, the management would give "consideration," that is, they would make up his earnings to some extent. But the

¹ At the same time I am told that men of very different capacities often work together, because they like each other as mates, or each other's ways of working.

custom of cavelling probably dates back long before the idea of "consideration," and was a rough-and-ready but broadly effective method of doing justice. Even with a minimum wage the difficulty is by no means entirely solved, and there is still much to be said for the system. On the other hand, it is often urged that at the beginning of every quarter the pit is in confusion for several days, while the workmen inspect their "luck," air their satisfaction or their woes, and move their tools, etc., etc., while at the end of every quarter the less scrupulous will not keep their working places in proper condition, since they know that there is very little chance that they will draw the same place twice running. Hallowed by custom, there is apparently no strong desire on either side in the northern coalfield to end the system, but if the drawbacks indicated above were not real, it would be strange to find that it has very rarely been introduced elsewhere.

NOTE III. METHODS OF WORKING AND WAGE STATISTICS IN SOUTH STAFFORDSHIRE

The South Staffordshire coalfield is simply one mass of faults and irregularities. Hence there are no large pits—a small pit is sunk and worked out, and a new pit sunk the other side of the fault. The district is dotted all over with disused shafts. To-day even, there are only three pits which employ more than two hundred men, and thirty years ago the average size would certainly be less. Mr. Whitehouse, the Secretary of the Miners' Association, estimates that the present average number employed per pit would not be greater than seventy, and there are quite a number of pits employing as few as thirty. There are two classes of seams: "thick" and "thin" coal, as it is called locally. The term "thick" coal refers exclusively to the "Dudley Seam," which varies from 15 to 30 feet in thickness, and is found at any depth from 20 feet to 600 yards. This huge seam is really a series of seams separated by a few inches of dirt, and is so formed by reason of the fact that the various separate seams found on Cannock Chase converge in what is known as the Dudley Basin, and virtually form there one seam. The term "thin" coal refers to all the other seams in the district; these vary from 4 feet 6 inches to 2 feet. Thirty years ago "thick" coal formed the major half of the total production of the district, but this proportion has been gradually changing, so that by 1913 the reverse was the case, and since then the change has been greatly accelerated by the failure of the drainage

scheme, especially round Tipton. The thick coal was worked first, and is now becoming exhausted, but the thin coal has been worked for a very long time also, mainly because it is mixed with bands of iron ore. Statistics of production are not available for this district separately, but it is probable, as has been said above, that it has diminished during the last thirty years. Water is the great difficulty, besides, of course, the prevalence of faults. The deeper mines are hot, but there is little or no gas, and naked lights are the general rule.

It may readily be conceived that special methods have to be used to get down a seam 30 feet thick. In thick coal working, therefore, the usual method is to drive a road straight through to the boundary. Chambers, about 8 feet square, are opened out on either side of the road, and other roads and chambers driven out parallel, leaving pillars in between. The coal is then undercut, and one seam taken down after another: props are put in as each seam comes down, and these have to be replaced by longer and longer ones, so that in the end they may be 25 feet high, and the men have to work on ladders. The normal staff of one of these chambers or stalls is one man in charge, called the "picker-in," plus two skilled colliers or holers, called "pikemen," plus one loader; but more men will be put in if for any reason the stall has to be worked quickly. There is of course no ripping, but the timbering requires great skill and experience. A "thin" coal-miner, or one from another district, is quite unable to work thick coal: thick coal mining is almost exclusively an hereditary occupation. For a more detailed account, complete with photographs, reference should be made to the proceedings of the Miners' Eight Hour Day Committee in 1908.

In thin coal, ordinary longwall working is the rule with stalls opening out 8 to 10 yards each way from a central gate. The normal staff is one man in charge, called a "pikeman"¹ who breaks down the coal and puts up props, plus three holers or, as they are called locally, "brushers and blowers," plus one loader. Any ripping is done on the night shift by men who have specialized on this work, after being trained as pikemen. It is a feature of the district that men are trained to all kinds of work—there is not the same specialization as in most districts, presumably mainly as the result of the small size of the pits. Similarly the roads are maintained by a repairer, who ranks with a pikeman, assisted by a man who ranks as a loader. No hand-putting is necessary, but owing to the poor condition of the roads in the smaller pits, and to the great size of the tubs used (they carry 15 to 20 hundredweights), the horse-drivers

¹ Note difference of nomenclature between thick and thin coal.

have to be strong, full-grown men, and boys cannot be employed. Men usually progress from horse-drivers to stall work, but many who are strong, but not too intelligent, remain at it permanently. The men in the stalls probably form 55 per cent. of all underground, and together with the repairers, 75 per cent.

In 1888 thin coal holers would be paid almost exclusively by a yardage measurement known as the "stint." If a man did less than two nominal stints per day, he got paid less in proportion. When he had finished the two, he could go. This has gradually been replaced by the group stint, that is, so many tubs per day from each stall. If the stall sends out less than the stinted number, they do not, however, get paid less, but when they have fulfilled the number, they can go. To-day, therefore, the stint system is only latently operative. It gives the employer a rough check, and it gives the men an incentive to work quickly so that they can go early : but it does not directly affect wages at all. To-day there are a few cases where the whole pit, and not merely each stall, is stinted, and a few others where, when the stinted number is finished, the men do not go, but continue working and get paid *pro rata* for the extra they send out. Apart from these few cases, there is no real piecework to-day in South Staffordshire, and the same would be true thirty years ago, with the exception of the thin coal stint holer.

This thin coal holers' stint has, however, continued to form the basis for the "nominal day," by which the wages of both thick and thin coal miners have been calculated at least since 1864.¹ Thus the nominal day for thick coal was reckoned as one and a quarter times the price of a thin coal stint, viz. : in 1888 $1\frac{1}{4} + 2s. 8d.$, or $3s. 4d.$ per nominal day. This must be clearly understood to be the basis for calculation and not the actual rate paid to coal-getters.² The method of calculation is as follows :—

THICK COAL (Nominal Day 3s. 4d.) :

Loaders get the nominal day's wage.

Pikemen do. do. X $1-\frac{1}{4}$.

Pickers-in do. do. X $1\frac{1}{2}$ and $1\frac{1}{2}$

(averaged
alternatively).

THIN COAL (Nominal Day 2s. 8d.) :

Loaders get the nominal day's wage X $1\frac{1}{4}$

Brushers and Blowers do. do. X $1\frac{1}{2}$

Pikemen do. do. X $1\frac{3}{4}$

¹ See *A Record of Prices and Wages in South Staffordshire from 1864 to date*, published periodically by the Miners' Association.

² See Bowley, *Wages in the United Kingdom*, page 108, where it is taken as the actual rate.

From this, and the following supplementary information, it is possible to build up an estimate of the wages of most grades in 1888. The nominal day rate for thin coal on the Wolverhampton side of the district has always been 3d. lower than on the Dudley side. This difference arose many decades back when the drainage system was introduced, and a tax per ton was levied on the owners. On the Wolverhampton side they managed to make the men pay a part of it, but not on the Dudley side, which is the more important area of the two. As regards the holer paid strictly by the stint, we have the usual difficulty with piecework earnings. It is certain that no holer did more than two stints in a day, since, when he had finished two, he went. Twice the stint is therefore a maximum, and it is very likely that on many days a holer would not complete two, owing to various causes. It is hardly likely that the stint holer would habitually earn more than the pikeman, despite the arduous nature of the work, and I think we shall not be far out in reckoning his average earnings as equal to the pikeman's day rate. Firemen also ranked about equal to the pikeman. The following table therefore shows an estimate of wages in South Staffordshire in 1888:

Coal-getters on Day Wage	.	.	.	4/6 ¹
Loaders	.	.	.	3/4
Timberers	.	.	.	4/7
Firemen	.	.	.	4/7
General Labourers—				
(Repairers' Assistants, etc.)	.	.	.	3/4

For comparison with wages in 1914, reference should be made to Appendix IV, Note IV.

NOTE IV. METHODS OF WORKING IN SOMERSETSHIRE AND THE FOREST OF DEAN

In Somersetshire the seams are all worked on the longwall method, more or less continuously right along the face. The stalls extend about 15 yards each side of the gateways, and each stall has two coal-getters, or as they are termed locally "breakers." They share equally and do all the ripping and timbering. As the seams do not average more than about 2 feet (one of the best is only 18 inches), it must be realized that there is very little headroom at the face until the ripping has been done. Hence the filling is done by two "carting boys," one generally

¹ Weighted according to the proportions of the different grades given above.

a young man from eighteen to twenty-two years old, and the other a boy. The "cart" is a long narrow box, mounted on skids or runners, and this is loaded with coal and pulled along the face by the carting boy, who generally has to crawl on hands and knees, with a chain attached to a belt and passing between his legs, a method of haulage which most people think of only in connection with the Mines Report of 1842. When the gateway is reached, the cart is emptied into a tub, and then putted out by hand to the main road. The carting boys share in proportion according to age, and are paid a rate per ton for carting and filling, and another for putting or "running," which varies according to the length of the gateway: for dirt the payment is so much per tub. The coal-getters' tonnage rate includes timbering, but ripping is paid by yardage. Repair work in the roads is done almost entirely on day rate, but stone-driving, or as it is locally termed "branching," is paid by yardage.

In the Forest of Dean the methods of working the house-coal are different to those in the steam-coal pits. In the "level" workings there is no one general method, and of these no account can be given. In the house-coal pits a peculiar system of irregular longwall working has become hallowed by custom and antiquity. The face is not kept straight, nor is it worked in steps, one length in front of the next, both of which methods are common in other coalfields, but it is worked haphazard in a continuous wavy line. In one pit however the face is kept straight, and it is said that for that reason only it has a greater production per man than any of the others. The stalls usually extend 15 to 20 yards each side of the "trolley" road, or gateway leading back to the main road. In each stall there are two, three, or four hewers, who do all the work at the face. When the coal is broken out, it is collected by a "hod boy," the equivalent to the "carting boys" in Somersetshire. The trolley road is often very low as it nears the face, and the hod boy may have to take his hod a considerable number of yards down the trolley road before emptying it into the trolley. When it is full the trolley is pushed by hand back to the main road, and then it is emptied into a tram or large truck, which is taken by horses to the shaft. The tram is loaded by a filler, and the hand-putting of the trolley may be done either by him or by the hod boy. The hod holds about two scuttles-full, the trolley about 8 to 10 hundredweights, and the tram anything from 20 to 30 hundredweights. The use of these large trams is necessitated by the fact that the shafts are only equipped for single-winding: the disadvantages of the method are many and obvious. Until the last four or five years a butty system has prevailed almost exclusively. Two of the hewers, or sometimes three, share equally, and employ other men at the face, together with the

hod boy and the filler, all on day rates. The butties used to engage these assistants without any reference to the management, and pay them direct. Lately, however, a change has begun, and in many pits now the assistants are engaged and paid by the management—a tendency which is rapidly spreading. This payment of assistants by day rate is in marked contrast to the practice in Somersetshire. A good deal of the repair work in the roads is however done by the piece, as also is all stone-heading, of which there is a considerable amount owing to the dip in the seams from the outcrop to the centre of the basin.

In the steam-coal pits, on the other hand, the pillar and stall method is almost universally employed. Two men work together, and they do all the work in their place including the filling of the coal direct into trams, though these are rather smaller than those used in the house-coal pits. But no hods or trolleys are needed, since the greater thickness of the seam and the different method of working, gives sufficient height for the trams to be brought practically right up to the face. To-day three of the steam-coal pits work three winding shifts, and three more work double shifts,¹ the men on each shift sharing with those who come to relieve them. Trammers come and fetch the trams, pushing them by hand as far as the main road.

Finally it may be noted that the tonnage rate in all pits is reckoned as 21 hundredweights to the ton. Presumably this is in part a very rough-and-ready method of dealing with the "dirt" question, but it may also be considered as an offset to the cheap coal and the free provision of tools which are the custom in this coalfield.

APPENDIX IV

NOTE I. STATISTICS OF WAGES IN NORTHUMBERLAND AND DURHAM

An account of the County Average and agreed basis rates system in these coalfields has been given in Chapter II, Section III. There is no doubt that the basis wages fixed in 1879 do represent fairly accurately the average earnings at that date, since it was solely with that end in view that they were fixed, and consequently comparison may be made between them and Mr. Finlay Gibson's figures for 1914. This is most fortunate, for the 1886 Wage Census does not show results for the two counties separately, and any such combination would be extremely arbitrary. In addition we have no guarantee that the Wage Census returns have been drawn from the two counties

¹ All the house-coal pits work single-shift only.

proportionately to their importance. When we come to make comparisons between the different districts, we can, moreover, adjust the 1879 rates for 1888 without risk of serious error, for trade was greatly depressed in these counties as everywhere else in 1888, and there would not be the difference between actual earnings and the County Average, which occurs in good times. Moreover the long period tendencies would not develop much in the eight years between 1879 and 1887.

The figures given for 1879 in the table require some explanation. The piecework hewers' agreed basis rates for Northumberland differ according to the varying length of the shift worked at different pits, and the figure of 5s. is an estimated average for the county as a whole. Before 1876 the hours of hewers at all pits were limited to a maximum of seven hours bank to bank, the average being about $6\frac{3}{4}$ hours. In that year, owing to the severe depression of trade which had followed the tremendous boom of 1872-73, the length of the shift at a large number of pits was increased by half an hour, and the basis rate was raised in compensation. Thus there arose a distinction in rates between "long" and "short" hour pits. There was also a general custom that the basis rate in pits where explosives had to be used, should be 2d. more than in pits where no explosives were necessary: this created the further distinction between "hard" and "soft" coal pits. In 1879 therefore the following basis rates were fixed:

	Hard Coal.	Soft Coal.
Long Hour Pits ($7\frac{1}{4}$ hours Average)	5/2	5/-
Short Hour Pits ($6\frac{3}{4}$ hours Average)	4/9½	4/7½

To these rates a further variation was added when the Eight Hours Act was introduced, for this was made the occasion for an increase of a quarter of an hour at some pits, and in compensation the basis rates for the old long hour pits were increased by 2d., that is, 5s. 4d. for hard and 5s. 2d. for soft, at these pits. With the introduction of coal-cutting machines and conveyors, yet another rate of 5s. 8d. for "fillers" was fixed. Hence to-day the accepted basis for the County Average is taken as 5s. 2d.

There is no agreed rate for coal-getters on daywork in Northumberland, but Mr. Straker stated that if a man were fetched from the face to do other work, he was usually paid the County Average for pieceworkers: this however is not borne out by Mr. Finlay Gibson's lower figures of 7s. 3d. for dayrate coal-getters in 1914, though this is only based on fifty-three men. As a matter of fact, coal-getters on dayrate are in both these counties so rare, that for practical purposes they may be neglected altogether. In regard to putters, there was a basis rate of 3s. 2½d. for pony putters on daywork in Northumberland, and in Durham a rate

of 3s. 4d. for hand-putters on daywork and 3s. 8d. on piecework, though it is said that the pieceworkers often earned more. In both counties the bulk of this work is done by the piece, and the figures in the above table are rough estimates in each case, regard being paid to this and the consequently higher earnings. It may be remarked that while the general level of wages in Northumberland was higher in 1879 than in Durham, this does not apparently hold good in regard to the putter class, probably owing to differences in the method of working. Similarly the figure for the stonemen group is an average of many different rates: in Northumberland the ripper on daywork was rated at 4s., but he probably earned on piecework as much as the piecework coal-getter: his assistant at 3s. 8d., the skilled timberer at about 5s., and ordinary repairers and shifters from 3s. to 3s. 3d. In Durham the basis rate for stonemen on piecework is 4s. 4d., and on daywork 3s. 7½d., for ordinary timberers 4s. 3d., and for timber-drawers 4s. 9d., while repairers and shifters got about 3s. 1d. It will be seen that the rates in Durham were on the whole rather lower than in Northumberland, but the greater proportion of piecework ripping, etc., and the fact that timber-drawing is done in Durham by men in class IV, while in Northumberland it is done by the deputies, makes it probable that the average for each county is about the same, as is shown in the table. The other rates need no comment. Supplementary evidence from various sources confirms the figures given.

We have not therefore made any use of the 1886 Wage Census. At the same time it is interesting to see how those returns compare with the figures we have calculated from the basis rates. The following table shows the Wage Census Returns converted into shift wages. The number of days worked per week was higher for Durham than for Northumberland: an average has been taken, weighted in the proportion of three to one respectively which is roughly correct according to the numbers employed at that date:

	1886 Census.	Days Worked.	Wages per Shift.
Coal-getters :			
Piece	26/-	5.5	4/9
Day	22/4	5.5	4/1
Putters	19/8	5.53	3/7
Stonemen	21/10	5.75	3/10
Firemen	28/11	6.0	4/10
Labourers	19/2	6.0	3/2

The last column may now be compared, as in the following table, with the result obtained by combining our estimates of the basis rates for the different grades in the same proportions. In 1886 wages in Northumberland were at standard, and in Durham $3\frac{3}{4}$ per cent. above, but no allowance for this small difference has been made.

	According to 1886 Wage Census.	According to Estimate from Basis Rates.
Coal-getters :		
Piece	4/9	4/5
Day	4/1	—
Putters	3/7	3/7½
Stonemen	3/10	4/-
Firemen	4/10	4/10
Labourers	3/2	2/11

These two columns compare very closely, all things considered. The comparison is of course made on the assumption that the Wage Census Returns were drawn from the two counties in the correct proportion. As we have said above, this is a fundamental point on which there is no information, and it is therefore not worth while pursuing the matter further. But in general, this comparison goes a long way towards supporting the reliability of the Wage Census Returns, and of the method by which they have been converted into shift wages, a method which has been used in all cases.

NOTE II. WAGES IN CUMBERLAND

Some account of the history of wage negotiations in Cumberland must be given. The year 1879 is to be regarded as the basis year for all subsequent wage adjustments, since in that year the first sliding scale was adopted. Wages were regulated by a succession of sliding scales until the end of 1889. In April, 1890, a Board of Arbitration and Conciliation was formed, consisting of an equal number of employers and employed with an Official Referee, for the purpose, among other things, of regulating percentage variations of wages. In this way a maximum of 40 per cent. was reached early in 1890. A year later, when prices began to recede, the employers claimed an equivalent reduction (10 per cent.), but the men refused to agree, on the ground that Lancashire and the whole of the Federated Area stood at 40 per cent. above the standard rates of 1887, and

that Scotland had an even greater percentage on their standard of 1887. But the owners contended that the standard price upon which this 40 per cent. was paid, was fixed for the operation of the old sliding scale, "under which the highest advance of percentage on the standard would have been 30 per cent., and not 40 per cent. as actually given," and that therefore "the standards of 1887 have had applied to them a percentage advance it was never intended they should bear." The Conciliation Board was terminated in April, 1891, but the 40 per cent. continued to operate until the great strike of 1892, which was settled by a most exhaustive arbitration. The principal terms of reference were as follows: "An adjustment of the standard rates of wages for piece- and daywork, having regard to the rates being paid for similar work during 1887, and to the rates now being paid in competitive districts, taking into consideration any differences in the hours and conditions of employment, and any changes that have taken place in the nature of the work since the above date." The arbitrator found that "the coal-owners have made out their case for a readjustment of the standard rates of wages," and awarded a $7\frac{1}{2}$ per cent. reduction on piecework standard rates, and a 12 per cent. reduction from the 40 per cent. advance of the 1887 daywork rates. It is important to realize the difference in the award between piecework and daywork. The standard rates of 1887 were the same as those of 1879 in both cases. After the award the pieceworker still got 40 per cent., but on the 1879 standard less $7\frac{1}{2}$ per cent., while the dayworker only got 28 per cent. though on the full nominal standard rates. The percentage variations, fixed as they are in reference primarily to the hewers, have continued on the basis of 1879 in a purely nominal fashion, while for dayworkers the basis has remained unchanged, but the actual variations have always been 12 per cent. below the nominal percentage level. The $7\frac{1}{2}$ per cent. off standard piecework rates was roughly equivalent to a 10 per cent. reduction in earnings, and for practical purposes it may therefore be reckoned that in comparing any year prior to 1892 with any year after that, the actual level of wages for all classes was 10 per cent. below the nominal percentage change.

NOTE III. DETAILS OF THE ESTIMATES OF WAGES IN LANCASHIRE IN 1888

The following table shows the results of the 1886 Wage Census, but it must be noted that under 5 per cent. of the total numbers

employed underground at that date was covered by the returns—a much smaller proportion than usual:—

	1886 Census.	Days per Week.	Wages per Shift.
Hewers :			
Piece	25 /-	5.0	5 /-
Day.	—	5.0	—
Putters	21 /8	5.1	4 /3
Stonemen	25 /9	5.1	5 /1
Firemen	28 /7	6.0	4 /9
Others	21 /5	6.0	3 /7

NOTES :

I. 4TH REPORT ON TRADE UNIONS.

(A) *Wages in West Lancs. Oct., 1891* (+ 40 per cent.).

Colliers Piece	7 /- = at Standard	5 /-
Drawers	5 /6 = „ „	3 /11
Datallers (skilled)	5 /2 = „ „	3 /8
„ (unskilled)	4 /- = „ „	2 /8
Firemen (weekly) 33 /- to 36 /- = „ „		4 /1

(B) *Hindley Miners' Benefit Society* (near Wigan).

Average Wages in 1888, 4 /9 for ten hours.

II. DOCUMENT "A." (A document giving a variety of information as to wages and conditions in the principal coal-fields, compiled by the Lancashire Miners' Association in 1885.¹)

Present Daily Wages February, 1885, 4 /9½ in South-West Lancs.

III. PAMPHLET OF LANCS. MINERS' ASSOC.

4 /9 in 1886.

IV. ROYAL COMMISSION ON LABOUR.

Wages in West Lancs. at end of 1891.

Estimate "A" 7 /2½ = at standard 5 /2.

„ "B" 7 /10 = „ „ 5 /7.

V. CUMBERLAND COAL COMMISSION, 1892.

Evidence by Cumberland owners and Mr. Ashton that hewers' earnings in Lancashire were in 1892 7s. 3d., which equals 5s. 2d. at standard.

VI. Mr. Thomas Ashton, secretary of the Lancashire Miners' Association, in a recent interview, while emphasizing the great variety in wages, estimated that colliers on piecework would average between 4s. 6d. and 5s. 3d. in 1888, and fillers from 3s. 6d. to 4s.

¹ A copy of this document is in the library of the London School of Economics.

While there is a considerable amount of supplementary information, it is not always clear exactly to what grade it refers. The figure of 4s. 9d., given in Notes IB, II and III may probably be taken as referring to the rate paid to colliers who were "brought out" of the face to do work on day-wages at the management's request. If this is so, the Wage Census average of 5s. for piece-work coal-getters is not as much in excess as is usually the case, and especially in view of Note IV it may well be another 3d. higher. Moreover, a general comparison with Note IA, shows at once that the general level of wages as stated there is for all other grades considerably lower than the Wage Census results. This is most marked in the case of labourers (i.e. unskilled datallers), and the discrepancy is very unfortunate, inasmuch as I cannot find any other statistics relating to this class.

Again the figure of 3s. 11d. for drawers in Note IA, is supported by Mr. Ashton's estimate of 3s. 6d. to 4s. It may fairly be assumed that the putter class, as being learners, would not average much more than the unskilled, and on the whole it seems likely that the Wage Census figures for both these classes are on the high side.

NOTE IV. WAGES IN THE SOUTH MIDLANDS COALFIELD

In the 1886 Wage Census the following counties were grouped in one table: South Staffordshire (including Cannock Chase), South Derbyshire, Leicester and North Worcester. The reason, if any, for this procedure is difficult to imagine, unless it be merely their geographical propinquity, for these districts differ considerably in the character of the coal produced, in the methods by which it is gained, in the general level of wages, etc., etc. Again, this grouping does not follow any combination or federation of the associations of masters or men. The Federated Area, included other counties as well, such as Yorkshire, Lancashire, Nottinghamshire and Derbyshire, while the Midland Miners' Federation at that time included also North Staffordshire and the Forest of Dean, but excluded South Derby. Mr. Finlay Gibson gives separate tables for all these districts, except that he combines South Staffordshire (less Cannock Chase) and East Worcester. East Worcester and North Worcester may be assumed to refer to the same district. As illustrating the differences in the general level of wages, Column I of the following table shows the average wage of all underground in June, 1914,

according to Mr. Finlay Gibson ; while Column II shows the still greater differences between the earnings of piecework coal-getters :—

TABLE I

	Col. I.	Col. II.
South Staffordshire and East Worcester .	6/-	7/1
Cannock Chase	7/3	8/6
Warwickshire	7/3	10/1
South Derbyshire	7/5	9/3
Leicestershire	6/9	7/-

There is no *prima facie* reason to suppose that in 1888 these differences were relatively any less. Another factor which should not be overlooked, is the difference in the extent to which these coalfields have developed since that time. Reference to Table II in Chapter II, Section I, will show that while production in Staffordshire, including Cannock Chase, was stationary during the period, production in Warwickshire increased three times, and in Leicestershire more than twice. Separate figures are not available for the Cannock Chase area, and for North and South Staffordshire separately, but as there is little doubt that Cannock Chase has expanded, and North Staffordshire remained unchanged, it is probable that South Staffordshire proper has considerably diminished in importance during the period.

In view of these facts, there is not the smallest reason to suppose that wages will have been influenced in the same way in each of these coalfields. Hence a comparison of the averages for all at different dates is more likely to mislead than guide us, in studying the possible movements in basis rates. As a matter of fact, it is almost impossible to obtain combined averages for 1914 ; the Coal Controller gave an average for the whole of the Midlands, but this includes North Staffordshire and Notts and Derbyshire, while it is not possible to strike an average direct from Mr. Finlay Gibson's separate figures, because the number of returns received varies from 20 per cent. for South Staffs to 94 per cent. for Leicestershire. I made an attempt to combine the average wage for each district in proportion to the numbers employed, but though the supplementary information is meagre, it is sufficient to invalidate the results obtained, in comparison with the 1886 Wage Census figures. There is of course no guarantee that the latter returns were drawn proportionately to the numbers employed in the different districts, and in point of fact the bulk of them probably come

from South Staffs, where the general wage level was higher than in the other districts.

It has therefore been necessary to collect statistics of wages for each of these districts in 1888. This has involved much detailed inquiry and comparison, and much "educated guess-work." Space forbids the publication of the exact procedure by which each figure has been obtained. For South Staffs they may be considered as reliable as any which we have handled: the general level of wages in the Cannock Chase district may be considered correct, but the figures for the different classes do not rest on a very substantial basis: the same is true for Warwickshire, though the degree of precision is probably rather smaller: while for Leicestershire the only thing that can be said is that well-informed local opinion maintains that wages have been regulated exclusively by the formal percentage variation, and it seems that there cannot have been any considerable increase, for the 1914 wages reduced to standard could not be reasonably much lower.

The following table is similar to that in Section I of Chapter IV (Leicestershire is omitted for the reason given above):—

		CLASSES.					
		I.	II.	III.	IV.	V.	VI.
<i>South Staffs.</i>							
	1888	—	4/6	3/4	4/7	4/7	3/4
Calculated . . .	1914	—	7/5	5/6	7/7	7/7	5/6
Actual	1914	7/1	5/10	5/4	4/10	7/1	5/10
<i>Cannock Chase.</i>							
	1888	5/0½	4/2	3/11	4/2½	4/2	3/11
Calculated . . .	1914	8/4	6/11	6/6	6/11	6/11	5/-
Actual	1914	8/6	6/11	6/0½	6/6	7/8	5/7
<i>Warwickshire.</i>							
	1888	5/-	3/6	3/- to 3/6	—	—	3/-
Calculated . . .	1914	8/3	5/9	4/11 to 5/9	—	—	5/9
Actual	1914	10/1	6/10	5/7	—	—	6/2

Mr. Finlay Gibson's figures for South Staffs can hardly be correct. As has been said, his returns only covered 20 per cent. These returns show 253 piecework coal-getters and only 62 coal-getters on day wage. Yet it is a fact that there is very little piecework at all in South Staffs, as is shown clearly in

Note III of Appendix III. From what has been said there, we may conclude that the actual figure of 7s. 1d. for Class I is really to be compared with the calculated figure of 7s. 5d. for Class II. Such a rate as 5s. 10d. can only apply to assistants, for the legal minimum for all classes of experienced coal-getters under the 1912 Act was considerably higher. Similarly Mr. Finlay Gibson's figure for Class IV is incredibly low: only fourteen men are returned, and on that account alone the figures may perhaps be dismissed. With these qualifications a general comparison of the calculated and actual wages in South Staffs in 1914 indicates that there has been no extra increase: indeed, except in the case of labourers, basis rates may have decreased.

Similarly the calculated and actual figures for Cannock Chase are in general correspondence. For Class III the legal minimum rate has been substituted for Mr. Finlay Gibson's figure of 5s. 1d.: the explanation probably lies in the fact that his returns included in this class learners under twenty-one years of age, whereas the 1888 figures and the minimum refer to adults only (a large proportion of loaders are between eighteen and twenty-one years old). The 1888 figure for this class may also be suspected as being rather too high, because of the small gap between it and the day rate for coal-getters. Classification is always a difficulty with the stonemen class, and it is on general grounds highly improbable that the firemen secured an extra increase while the coal-getters did not. It can only be said that the available statistics for Cannock Chase are so scanty that a reliable estimate cannot be made, but we may hazard a guess that basis wages have not altered to any extent, though the rate for unskilled labour may have risen a little.

The rapid expansion of the Warwickshire coalfield would lead one to expect an increase in wages. It appears to be phenomenal in the case of the stallmen, and it is clear that there was a more or less general increase, for the stationariness of loaders' wages does not invalidate the other figures. They are learners and paid by the men for whom they work, and the force of custom is very strong. Exact statistical measurement of the extra increase in Warwickshire is not possible, but it was certainly very considerable, especially in the case of the stallmen.

NOTE V. WAGES IN SOMERSETSHIRE AND THE FOREST OF DEAN

Unfortunately Somersetshire and the Forest of Dean are combined in the 1886 Wage Census, and it is a well-established fact that the level of wages was considerably higher in the Forest. The following table shows the results obtained by the usual treatment. The number of days worked per week is for Somersetshire only :—

TABLE I

	1886 Wage Census.	Days per Week.	Wages per Shift.
Coal-getters :			
Piece	22 /1	5·93	3 /9
Day	18 /7	5·93	3 /2
Putters	21 /1	5·97	3 /6
Stonemen	21 /—	5·98	3 /6
Firemen	20 /4	6·0	3 /5

It may be noted first of all, that only sixteen men were returned as day-rate hewers, and of the stonemen class, only twelve "tunnellers or driftmen"—no repairers or timbermen.

The only recognized rate in Somersetshire at that time was for hewers on day-rate, whose standard was fixed as 2s. 6d. in 1879. I have not been able to ascertain definitely what percentage was current in 1886, but according to Document "A" ¹ there was 5 per cent. on in February, 1885, and it seems likely that it continued until 1887. This recognized rate may therefore, at the time of the Wage Census, have been 2s. 7½d., but this is still a long way below the 3s. 2d. given in the table above. In 1900 this rate was raised by 6d. and again by 3d. in 1911, and this total of 3s. 3d. was taken as the standard rate for the legal minimum wage in 1912 (current percentage in addition). Supported in this way by recent history, the figure of 2s. 6d., or with percentage 2s. 7½d., seems incontrovertible, but if the figure for piecework coal-getters is reduced by an equivalent amount, that is from 3s. 9d. to 3s. 2½d., it is difficult to reconcile this with the statement in Document "A" that "daily wages" in February, 1885, were 2s. 10½d. to 3s. 11¼d. Failing further evidence, we may well assume, however, that this represents the extreme range of the

¹ A document giving a variety of information as to wages and conditions in the principal coalfields, compiled by the Lancashire Miners' Association in 1885, and already referred to above.

earnings of piecework coal-getters, and in this sense the average would probably be about the same.

The putter class in Somersetshire consists mainly of the senior carting boys, who generally make relatively good money. A census of wages taken by the Miners' Association during the war shows that when the coal-getters were earning 6s. 1 $\frac{1}{4}$ d., the carting boys (over twenty-one years) were earning 5s. 9 $\frac{3}{4}$ d., very much the same margin as is shown by the 1886 Wage Census, and very much less than is usually found in other coalfields: but this is on account of the character of the work performed. Including repairers and timbermen the average for the stonemen class would probably be about the same as the rate for hewers on daywork, and the same for the firemen. As regards labourers, however, it is doubtful whether it would be correct to subtract the same amount from the 1886 Wage Census figure as in the case of the skilled grades. The range of wages in Somersetshire between skilled and unskilled has always been relatively small compared with other districts. Mr. H. S. Jevons attributes this to the fact that less skill generally is required in the small and shallow mines of Somersetshire, than, for example, in South Wales or Durham.¹ The range in Mr. Finlay Gibson's figures for 1914 is only from 5s. 9d. to 4s. 4 $\frac{1}{2}$ d., and at the lower level of wages existing in 1888, this may be said to support an estimate by Mr. Swift² of 2s. 2d. to 2s. 4d. as the prevalent unskilled rates at that date.

Our final estimate for Somersetshire therefore is very different from the 1886 Wage Census results, as is shown in the first column of the following table:—

TABLE II

	1888.	Do. + 52 $\frac{1}{2}$ per cent.	F.G. 1914.
Coal-getters :			
Piece	3/3	5/-	5/9
Day.	2/6	3/7	5/-
Putters	2/11	4/-	4/5 $\frac{1}{2}$
Stonemen	2/6	3/7	5/4
Firemen	2/6	3/7	5/2
Labourers	2/3	3/5	4/4 $\frac{1}{2}$

¹ This may be a contributory cause, but it is not necessarily the only cause. A price list dated 1792 shows the same small range, and in more recent years the relatively greater advance of the unskilled has of course tended to decrease it still further.

² Secretary of the Miners' Association.

But during the period, as we have said above, the basis rate for coal-getters on daywork, the one recognized daily rate, was increased by 6d. in 1900 and by another 3d. in 1911. The rates for other classes, repairers, timbermen, labourers, and so on, were raised by an equivalent amount. An advance of 9d. on 2s. 6d. means that basis rates were raised by 30 per cent. In the following table the 1888 rates + 30 per cent. are shown in Column I—Column II shows the figures of Column I + the 52½ per cent. on standard, current in 1914, and Column III Mr. Finlay Gibson's returns for 1914:—

TABLE III

	Col. I. 1888 + 30 per cent.	Col. II. Do. + 52½ per cent.	Col. III. F.G. 1914.
Coal-getters :			
Piece	4/3	6/6	5/9
Day.	3/3	5/-	5/-
Putters	3/9	5/8½	4/5½
Stonemen	3/3	5/-	5/4
Firemen	3/3	5/-	5/2
Labourers	2/10	4/4	4/4½

The correspondence between Columns II and III is extremely close except for coal-getters on piecework and for the putter class.

It is significant that these two classes contain practically all the pieceworkers underground, and are almost entirely composed of pieceworkers. The obvious conclusion to be drawn is, therefore, that piece rates were not increased by the same amount as day rates. The greater difference in the case of the putter class may be explained as resulting partly from the inclusion by Mr. Finlay Gibson of the horse drivers, whereas the 1888 figures cover carting boys only, and partly from differences in the age limit between adults and boys. A comparison of Columns II and III in Table II above shows that these two classes have gained to some extent, but there can be little doubt that the day rate men, mainly semi-skilled and unskilled, have gained considerably more than the pieceworkers.

We may now examine the figures of the 1886 Wage Census in regard to the Forest.

	1886 Wage Census.	Days Worked.	Wages per Shift.
Hewers :			
Piece	22 /1	5·41	4 /1
Day.	18 /7	5·41	3 /5
Putters	21 /1	5·31	4 /—
Stonemen	21 /—	5·35	3 /11
Firemen	20 /4	6·0	3 /5
Labourers	14 /9	6·0	2 /6

Since the 1886 Wage Census combines Somersetshire and the Forest of Dean in one table, the difference in wages per shift in the two districts, as calculated from the census figures, is simply caused by differences in the number of days worked per week. There is no doubt of the fact that money wages have always been considerably higher in the Forest than in Somersetshire. It is not therefore surprising to find that the recognized basis rates in the Forest for daywork coal-getters employed by butties were 3s. 10d. or 4s. This is the only standard rate which was recognized before the war. It would apply also to timbermen and stonemen on day rate. The figure is further substantiated by Document "A," which gives "daily wages" in February, 1885, as 4s. If then the hewer on day rate was getting 3s. 10d. to 4s., it is fairly certain that the piecework hewer was getting more than 4s. 1d.: his earnings are much more likely to be round about 4s. 6d. In the case of the putter class it would appear as if the high piecework earnings of the carting boys in Somerset had greatly influenced this figure, for while there was no recognized basis rate in the Forest until 1915, it was then fixed as low as 3s. 4d. Lacking other evidence we can only take this figure—the actual rates in 1886 would not certainly be higher than this. As regards the stonemen class, we have already noted their day rate as 3s. 10d. to 4s., and it would appear that when on piecework their earnings were not much more, for in a price list for one of the biggest collieries dated as late as 1900 it is laid down that "men working yardage may be allowed to make 4s. per day + percentage." Firemen would probably get the higher rate for coal-getters on day wage. The labourers' rate of 2s. 6d. should probably be raised 4d. to 5d. in accordance with the generally higher level of wages than that shown by the Wage Census. These modifications have been adopted in the figures given in chapter IV.

NOTE VI. VARIATION OF WAGES IN LANARKSHIRE

The following tables are based on returns obtained by the Lanarkshire Miners' Union from their branches, the first in June, 1912, and the second in January, 1919. Only general comparisons can be drawn as to the increased wages secured by various classes during the period, owing to differences in classification, though in this connection it may be noted that in the former case wages were 62 per cent. above standard, while the latter return represents wages at a nominal level of 150 per cent. above standard, as the figures are less war wages and the Sankey Award. The main reason for including these tables is however to show the very wide variations in the wages of all classes. This is caused mainly by variations as between different pits, and partly also as between different individual men. The unions have not secured either a district standard rate, or a standard rate for all men doing the same kind of work in the same pit. There seems to have been little or no movement towards standardization during the period covered by these returns.

ONCOST WAGES, JUNE, 1912, IN LANARKSHIRE

(From Miners' Returns)

	Roadsmen and Redds- men.	Bottom- ers.	Drivers and Drawers.	Shotfirers and Firemen.	Brushers.
No of Pits making Returns . . .	37	37	35	39	14
Lower Quartile .	5/5	5/6	5/3	5/10	6/-
Median . . .	5/10	5/8½	5/6	6/-	6/9
Upper Quartile .	6/-	5/11	5/9	6/2	7/7½
Lowest Rate . .	4/4	4/7	4/-	5/-	4/4
Highest Rate . .	6/6	6/6	6/6	6/6	7/9

Total number of pits to whom schedules were sent—119.

LANARKSHIRE MINERS' COUNTY UNION

WAGES PAID TO THE VARIOUS CLASSES OF ONCOST WORKERS
UNDERGROUND AT JANUARY, 1919.*(All Figures are less the War Wage of 3s. and the Sankey Award.)*

Class of Worker.	Average.	Highest.	Lowest.	No. of Branches sending Returns (of total 126).
Firemen . . .	11/1	12/4	9/6	111
Shotfirers . . .	8/7½	13/6	7/3	58
Roadsmen . . .	8/7½	13/6	7/3	105
Repairers . . .	10/1½	13/-	7/6	99
Drawers . . .	10/0¾	12/-	6/9	60
Drivers . . .	8/6¾	12/6	6/3	69
Bottomers . . .	10/5	12/6	7/-	106
Benchers . . .	8/10	13/-	6/8	53
Haulage or Chain- men . . .	9/7½	13/-	7/6	84
Machinemen . . .	13/4	20/-	10/-	59
Strappers . . .	11/4	17/-	9/4	58
Gummers . . .	10/11	17/-	9/6	52
Brushers . . .	12/4	17/-	9/6	62
Motor Attendants	8/9	12/-	5/-	56
Motor Haulage .	8/10½	10/4	5/6	48
Pumpers . . .	8/6	11/-	5/1	51

The number of returns is not an accurate indication of the trustworthiness of the figures, because of the variety of working conditions and amount of machinery in each pit, e.g. more than half the pits in Lanarkshire are dry and therefore need no pumpers.

NOTE VII. RECOGNIZED PERCENTAGE CHANGES IN RATES SINCE OCTOBER, 1921

(As given monthly in the *Labour Gazette*.)

	North- umber- land.	Durham.	N.E. Mid- lands. ¹	Lancs and North Staffs.	South Wales.	Scot- land.
Basis Year . .	1879	1879	1911	1911	1915	1888
Percentage Level (nearest integer) at —						
1921						
October 1 . .	213	197	140	111	79	246
November 1 . .	121	143	111	75	29	142
December 1 . .	107	120	110	73	28 ²	136
1922						
January 1 . .	86	94	110	72	28 ²	133
February 1 . .	83	89 ²	97	61	28 ²	129
March 1 . . .	80 ²	89 ²	91	57	28 ²	110 ²
April . . .	85	89 ²	90	54	28 ²	114
May 1 . . .	88	90	80	42	28 ²	110 ²
June 1 . . .	80 ²	89 ²	64	32 ²	28 ²	110 ²
July 1 . . .	80 ²	91	54	32 ²	28 ²	110 ²
August 1 . . .	80 ²	89 ²	32 ²	32 ²	28 ²	110 ²
Sept. 1 . . .	80 ²	89 ²	36	32 ²	28 ²	110 ²
Oct. 1 . . .	91	89 ²	39	32 ²	28 ²	110 ²

NOTE.—Subsistence Wages, slightly higher than the standard rates and current percentage, have been given to the lowest paid grades in certain districts during 1922.

¹ Comprising Yorkshire, Notts and Derbyshire, Leicestershire, Cannock Chase, and Warwickshire.

² Minimum, below which percentage cannot fall under the terms of the 1921 agreement.

APPENDIX V

THE EFFECTS OF THE EIGHT HOURS ACT IN
NORTHUMBERLAND AND DURHAM

Before the Act was passed, there was only one shift of transit hands to two of hewers in the double-shift pits, and only two shifts against three in the three-shift pits. The hewers worked a maximum of seven hours bank to bank, but the transit hands were still working ten hours in 1908. The Unions were opposed to the introduction of a universal Eight Hours Shift, for it was feared that there were not enough lads and young men available to work an equal number of shifts with the hewers, and that this result, together with the increased cost of production which was bound to follow, would make competition in the export market impossible. In addition they were opposed to any multiplication of the number of shifts. But the Act passed, and these difficulties have been satisfactorily solved, at any rate from the trade point of view.¹ From 1908 until the passing of the Seven Hours Act, the tendency was to work three shifts of hewers and two of transit hands; the third winding-shift of course helped to keep down the cost of production. By 1914 very few pits in Durham were not working three shifts, but the tendency never operated to quite the same extent in Northumberland. With the passing of the Seven Hours Act in 1919 Northumberland reverted to the two-shift system and the transit hands now work in relays. In Durham the three-shift system was maintained, and consequently a third shift of transit hands was taken on. Neither the Eight nor the Seven Hours Act affected the hewers at all: the transit hands alone gained by the Eight Hours Act, for the normal hours of other grades had always been about eight, exclusive of winding time: but both the transit hands and all the other men underground gained equally by the introduction of the Seven Hours Act. Moreover the putters not only gained by the Eight Hours Act a clear reduction of about two hours in the length of the shift, but the basis rates for pieceworkers were raised in Durham from 3s. 8d. to 4s. 2d., and there was probably some increase in Northumberland also. In 1919 there was of course full compensation to all pieceworkers for the reduction in hours, while day rates remained the same.

¹ For the effect of the multiple-shift system on the miners' home-life see Webb, *Story of the Durham Miners*, pages 70-72.

APPENDIX VI

PROFITS AND ROYALTIES FROM 1889-1918

(From Government Returns and Estimates.)

Year.	Amount £ Millions.	Per Ton Raised.
Average 1889-1893 .	11·7	1/3 ·78
1894-1898 .	8·7	10 ·68
1899-1903 .	19·2	1/8 ·54
1904-1908 .	17·2	1/4 ·52
1907 . . .	24·4	1/9 ·86
1908 . . .	22·7	1/8 ·83
1909 . . .	14·9	1/1 ·55
1910 . . .	15·9	1/2 ·43
1911 . . .	15·3	1/1 ·50
1912 . . .	21·2	1/7 ·54
1913 . . .	28·0	1/11·38
1914 . . .	21·5	1/7 ·42
1915 . . .	27·4	2/1 ·97
1916 . . .	43·8	3/5 ·00
1917 . . .	33·7	2/8 ·55
1918 . . .	35·5	3/1 ·50
1919 . . .	36·4	3/2 ·00
1920 . . .	41·0	3/7 ·00

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